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YAV-8B Simulation and Modeling
Volume II: Program Listing

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YAV-8B Simulation and Modeling Volume II: Program Listing

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McDonnell Aircraft Company
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1. INTRODUCTION AND SUMMARY

As part of its V/STOL research program, NASA intends to conduct flight investigations of the stability, control and handling qualities of highly augmented V/STOL aircraft. Specific plans include the flight tests of a YAV-8B aircraft modified to include an advanced avionics and flight control system for improving flying qualities and performance.

As an initial phase to this program, NASA will conduct flight tests of the YAV-8B vehicle in order to extract aerodynamic and propulsion characteristics, update existing simulation models, validate handling qualities and design criteria, and to improve V/STOL flight test techniques. This program will also include tests using a static test stand located at the Dryden Flight Research Center, where flight tests of the YAV-8B will take place.

In order to perform high quality parameter estimation and analysis of the YAV-8B characteristics, it is necessary to construct mathematical models of varying complexity and linearity from existing wind tunnel and flight test data.

The McDonnell Aircraft Company (MCAIR) recently completed a V/STOL simulation and modeling study under contract to NASA Dryden. This study defined and documented detailed mathematical models of varying complexity representative of the YAV-8B aircraft. These models will be used by NASA in parameter estimation and in linear analysis computer programs while investigating YAV-8B aircraft handling qualities. Both a six degree of freedom nonlinear model and a linearized three degree of freedom longitudinal and lateral directional model were developed.

The nonlinear model is based on the mathematical model used on the MCAIR YAV-8B manned flight simulator. This simulator model has undergone periodic updating based on the results of approximately 360 YAV-8B flights and 8000 hours of wind tunnel testing. Qualified YAV-8B flight test pilots have commented that the handling qualities characteristics of the simulator are quite representative of the real aircraft. These comments are validated herein by comparing data from both static and dynamic flight test maneuvers to the same obtained using the nonlinear program.

The linearized mathematical model uses stability derivatives and is formatted exactly as the models traditionally used in conventional flight dynamic analysis. Aircraft characteristics were predicted using this linearized model and compared to both the flight data and the nonlinear predictions. To document the aircraft characteristics throughout the flight envelope trim conditions and stability derivatives are provided for 24 flight conditions.

A FORTRAN batch simulation of the nonlinear model has been produced. Documentation for this simulation consists of a description of the software including top level flow charts, program structure, subroutine interfaces, modeling equations, data format, a user's guide, source listings and plots of the over 17,000 aerodynamic and propulsion data points used in the model.

This report is divided into two volumes. Volume I contains the description of the aircraft, documentation of the nonlinear and linear mathematical models, stability derivatives, the comparisons of predicted and actual flight test data which validate the nonlinear model and a discussion of models appropriate for use in parameter estimation programs. Volume II contains the source listings for the nonlinear program and plots of the aerodynamic and propulsion data used in the nonlinear program.

APPENDIX A

YAV-8B NONLINEAR

PROGRAM LISTING

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```
      PROGRAM YAV88(INPUT=1008,OUTPUT=1000B,
     :              TAPE3=0,
     :              TAPE5=INPUT,TAPE6=OUTPUT)

      COMMON / FARRAY / F(3000)

      EQUIVALENCE (A,F(1901))

      EQUIVALENCE
     . (JDATE   ,F( 47))
     .,(JTIME   ,F( 48))
     .,(NRUN    ,F( 49))
     .,(DTBUF   ,F( 65))
     .,(DTOR    ,F( 91))
     .,(RTOD    ,F( 92))
     .,(PI      ,F( 93))
      EQUIVALENCE
     . (G       ,F(100))
     .,(FDT     ,F(118))
     .,(CDT     ,F(119))
     .,(NOCARDS,F(140))
     .,(TSTOPD ,F(150))
     .,(RUNTIME,F(151))
     .,(INITIAL,F(153))
     .,(IRESET  ,F(155))
     .,(NPASS   ,F(156))
     .,(NPASSO  ,F(157))
     .,(IRTPBUF,F(179))
     .,(IAC     ,F(277))

      DIMENSION
     . A(1000)

      DATA
     .  NRUN     /1/
     ., NPASSO   /400/
     ., DTOR     /.017453/
     ., RTOD     /57.29578/
     ., PI       /3.14159/
     ., G        /32.1741/
     ., FDT      /.05/
     ., CDT      /.05/
     ., TSTOPD   /10./
     ., DTBUF    /.05/
     ., IAC      /1/
     ., IRTPBUF  /1/

      CALL DATE(JDATE)
      CALL TIME(JTIME)

      CALL CARDS
*
*                                  INITIAL PASS
```

```
      *
 1000 CONTINUE

      CALL STNDAY

      CDT = FDT
      NPASS = 0
      RUNTIME = 0.0
      INITIAL = 1
      IRESET = 1

      CALL ISOONCE
      INITIAL = 0
      *
      *                                             RESET
      *
 1100 CONTINUE
      CDT = FDT
      NPASS = NPASS + 1

      CALL ISOMS

      IF(NPASS .LT. NPASSO) GO TO 1100

      IRESET = 0
      CALL IRTPDAT
      *
      *                                             OPERATE
      *
      PRINT 9510, NRUN, ITIME
 9510 FORMAT(/* START RUN NO.*, I5, 5X, A10)

 1700 CONTINUE
      CDT = FDT
      CALL RTPDATA
      CALL ISOMS

      RUNTIME = RUNTIME + FDT
      IF(RUNTIME .LT. (TSTOPO-.0001)) GO TO 1700
      CALL FRTPDAT

      CALL CARDS
      IF(NOCARDS .NE. 0) GO TO 2600

      NRUN = NRUN + 1
      GO TO 1000

 2600 CONTINUE

      END
```

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```
       PROGRAM YAVBB       74/175  OPT=2                       FTN 4.3+138        02/10/22. 15.12.28       PAGE     3

     SYMBOLIC REFERENCE MAP (R=2)

ENTRY POINTS       DEF LINE      REFERENCES
 1373  YAVBB           1

VARIABLES       SN  TYPE             RELOCATION
 1750   A            REAL      ARRAY    FARRAY        REFS          10         34
  166   CDT          REAL               FARRAY        REFS          20     DEFINED        37           64           77          93
  100   DTAUF        REAL               FARRAY        REFS          12     DEFINED        37
  132   DTOR         REAL               FARRAY        REFS          12     DEFINED        37
    0   F            REAL      ARRAY    FARRAY        REFS           7         10         7*12         12*20
  165   FDT          REAL               FARRAY        REFS          20         64         77           93           97
                                                   DEFINED          37
  143   G            REAL               FARRAY        REFS          20     DEFINED        37
  424   IAC          INTEGER            FARRAY        REFS          20     DEFINED        37
  230   INITIAL      INTEGER            FARRAY        REFS          20     DEFINED        67           71
  232   IRESET       INTEGER            FARRAY        REFS          20     DEFINED        68           94
  262   IRTPBUF      INTEGER            FARRAY        REFS          20     DEFINED        37
   56   JDATE        INTEGER            FARRAY        REFS          12         52
   57   JTIME        INTEGER            FARRAY        REFS          12         53         89
  221   NOCARDS      INTEGER            FARRAY        REFS          20        102
  233   NPASS        INTEGER            FARRAY        REFS          20         78         82       DEFINED        65          78
  234   NPASSD       INTEGER            FARRAY        REFS          20         82      DEFINED        37
   60   NRUN         INTEGER            FARRAY        REFS          12         89        104       DEFINED        37         104
  134   PI           REAL               FARRAY        REFS          12     DEFINED        37
  133   RTOD         REAL               FARRAY        REFS          12     DEFINED        37
  226   RUNTIME      REAL               FARRAY        REFS          20         97         98       DEFINED        66          97
  225   TSTUPD       REAL               FARRAY        REFS          20         98      DEFINED        37

FILE NAMES          MODE
    0   INPUT
  174   OUTPUT       FMT                   WRITES        99
 1270   TAPE3
    0   TAPE5
  174   TAPE6

EXTERNALS              TYPE    ARGS          REFERENCES
        CARDS                    0               55         101
        DATE                     1               52
        FRTPDAT                  3               99
        IRTPDAT                  0               95
        I30HS                    0               80          95
        I500NCE                  0               70
        RTPDATA                  0               94
        SINDAY                   0               62
        TIME                     1               53

STATEMENT LABELS              DEF LINE     REFERENCES
 1401   1000                     63           105
 1411   1100                     75            42
 1424   1700                     92            98
 1442   2600                    107           102
 1454   9510      FMT            90            89
```

```
      SUBROUTINE I50MS




*************************************************************************
*
*  THIS SUBROUTINE MUST BE USED IN A 0.05 SECOND UPDATE LOOP, AND
*  PROVIDES ONE 0.05 SECOND UPDATE SECTION.
*
*  ALSO, THIS SUBROUTINE PROVIDES ALL THE ENTRY POINTS REQUIRED TO
*  INTERFACE WITH PROGRAM YAV98.  ONE ADDITIONAL ENTRY POINT (I50ONCE)
*  IS INCLUDED IN THIS SUBROUTINE FOR ONE PASS (INITIAL=1)
*  INITIALIZATION.
*
* F-ARRAY INPUT DEFINITIONS
*
C
* FDT      BASIC UPDATE TIME INCREMENT IN SECONDS
* INITIAL  INITIAL FLAG
* IRESET   RESET FLAG
C
*
* F-ARRAY OUTPUT DEFINITIONS
*
C
* CDT      CURRENT UPDATE TIME INCREMENT IN SECONDS
C
*
*************************************************************************
*
*
* COMMON STATEMENT(S)
*
      COMMON / FARRAY / F(1001)
*
* EQUIVALENCE STATEMENT(S)
*
      EQUIVALENCE
     .(RTOD    ,F( 92)),(G       ,F(100)),
     .(FDT     ,F(118)),(CDT     ,F(119)),
     .(TIME    ,F(151)),(INITIAL,F(153)),
     .(A       ,F(100))

      EQUIVALENCE
     . (GAMMA   ,A( 31))
     .,(AZ      ,A( 53))
     .,(THETA   ,A(103))
     .,(ALPHA   ,A(117))
     .,(PD      ,A(140))
     .,(QD      ,A(141))
     .,(RD      ,A(142))
     .,(P       ,A(147))
     .,(Q       ,A(146))
     .,(R       ,A(149))
     .,(AEROX   ,A(324))
```

```
     .,(AERJY   ,A(327))
     .,(AERQZ   ,A(328))
      EQUIVALENCE
     . (DHTD    ,A(503))
     .,(STLOPC  ,A(526))
     .,(STLAPC  ,A(527))
     .,(PUDPC   ,A(528))
     .,(IMODE   ,A(627))
     .,(IFLAP   ,A(635))
     .,(DFLAPI  ,A(637))
     .,(PDEG    ,A(732))
     .,(QDEG    ,A(733))
     .,(RDEG    ,A(734))
     .,(FTX     ,A(751))
     .,(FTY     ,A(752))
     .,(FTZ     ,A(753))
     .,(PCTHR   ,A(776))
     .,(PCHNZ   ,A(777))
      EQUIVALENCE
     . (PTHLD   ,A(816))
     .,(IWATER  ,A(835))
     .,(QDDEG   ,A(944))
     .,(PDDEG   ,A(943))
     .,(RDDEG   ,A(945))
     .,(ICASE   ,A(959))
     .,(YTOT    ,A(973))
     .,(YTOT    ,A(974))
     .,(ZTOT    ,A(975))
     .,(ANZA    ,A(1000)))
*
* DIMENSION STATEMENT(S)
*
      DIMENSION
     . A(1000)
     .,DELCS25(13)
     .,BRKTM25(13)
     .,BNDTM25(2)
*
*  DATA STATEMENTS
*
      DATA
     . BRKTM25/0.0,1.6,2.0,2.2,2.4,2.7,3.4,3.6,3.7,3.9,4.1,4.5,5.5/
     .,BNDTM25/0.0,5.5/
     .,DELCS25/2*0.0,-32.08,2*-36.79,-9.91,25.47,2*27.83,13.21,8.02,7.55
     .,0.0/

*                                   *******************************************
*                                   *
*                                   *  RESET/OPERATE LOOP PATHS
*                                   *
*                                   *******************************************
*

*                                             ***********************
*                                             **                  **
```

```
      *                                            *  20/SEC SUBROUTINES  *
      *                                            **                   **
      *                                            ***********************
            CDT = FDT

            PDDEG = PD * RTOD
            QDDEG = QD * RTOD
            RDDEG = RD * RTOD
            PDEG = P*RTOD
            QDEG = Q*RTOD
            RDEG = R*RTOD

            STLDPC=52.14
            STLAPC=0.0
            CALL FSRCH(TIME,BPKTM25,13,ITHM25,1)
            RUDPC=F1B(TIME,13,BNDTM25,DELCS25)
            IFLAP = 1
            IF(DFLAPL.GE.4.0) IFLAP = 0
      *
            CALL AC07
      *

            ANZB = -AZ / G

            XTOT = AEROX + FTX
            YTOT = AEROY + FTY
            ZTOT = AERDZ + FTZ

            CDT = FDT

            RETURN
      *                                     *******************************************
      *                                     *
      *                                     * ONE PASS INITIALIZATION
      *                                     *
      *                                     *******************************************
            ENTRY I50ONCE

            CDT = FDT

            PTBLD = 1.
      *                                            ONE PASS (INITIAL = 1)
      *                                            INITIALIZATION CALLS
            CALL AC07

            CDT = FDT
            RETURN
            END
```

SYMBOLIC REFERENCE MAP (R=2)

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```
      SUBROUTINE I50MS      74/175  OPT=2                          FTN 4.8+539      82/10/22. 15.12.36      PAGE     4

ENTRY POINTS      DEF LINE      REFERENCES
    1   I50MS          1          145
   42   I50ONCE      152          163

VARIABLES        SN  TYPE              RELOCATION
  1750  A            REAL       ARRAY    FARRAY      REFS     40    13*46    15*60    10*76    90
  2455  AEROX        REAL                FARRAY      REFS     46    140
  2456  AEROY        REAL                FARRAY      REFS     46    141
  2457  AEROZ        REAL                FARRAY      REFS     46    142
  2134  ALPHA        REAL                FARRAY      REFS     46
  3717  ANZB         REAL                FARRAY      REFS     76  DEFINED    138
  2034  AZ           REAL                FARRAY      REFS     46    138
   127  BNOTM25      REAL       ARRAY                REFS     90    130   DEFINED    98
   112  BRKTM25      REAL       ARRAY                REFS     90    129   DEFINED    98
   166  COT          REAL                FARRAY      REFS     40  DEFINED    118      144      154      162
    75  DELCS25      REAL       ARRAY                REFS     90    130   DEFINED    98
  3144  DFLAPL       REAL                FARRAY      REFS     60    132
  2736  DHTO         REAL                FARRAY      REFS     60
     0  F            REAL       ARRAY    FARRAY      REFS     36    7*40
   165  FOT          REAL                FARRAY      REFS     40    118      144      154      162
  3326  FTX          REAL                FARRAY      REFS     60    140
  3327  FTY          REAL                FARRAY      REFS     60    141
  3330  FTZ          REAL                FARRAY      REFS     60    142
   143  G            REAL                FARRAY      REFS     40    138
  2606  GAMMA        REAL                FARRAY      REFS     46
  3646  ICASE        INTEGER             FARRAY      REFS     76
  3142  IFLAP        INTEGER             FARRAY      REFS     60  DEFINED    131      132
  3132  IMODE        INTEGER             FARRAY      REFS     60
   230  INITIAL      INTEGER             FARRAY      REFS     40
    74  ITHM25    *  INTEGER                         REFS    129
  3452  IWATER       INTEGER             FARRAY      REFS     76
  2172  P            REAL                FARRAY      REFS     46    123
  3360  PCNOZ        REAL                FARRAY      REFS     60
  3357  PCTHR        REAL                FARRAY      REFS     60
  2163  PD           REAL                FARRAY      REFS     46    120
  3626  PDDEG        REAL                FARRAY      REFS     76  DEFINED    120
  3303  PDEG         REAL                FARRAY      REFS     60  DEFINED    123
  3427  PTBLD        REAL                FARRAY      REFS     76  DEFINED    156
  2173  Q            REAL                FARRAY      REFS     46    124
  2164  QD           REAL                FARRAY      REFS     46    121
  3627  QDDEG        REAL                FARRAY      REFS     76  DEFINED    121
  3304  QDEG         REAL                FARRAY      REFS     60  DEFINED    124
  2174  R            REAL                FARRAY      REFS     46    125
  2165  RD           REAL                FARRAY      REFS     46    122
  3630  RDDEG        REAL                FARRAY      REFS     76  DEFINED    122
  3305  RDEG         REAL                FARRAY      REFS     60  DEFINED    125
   133  RTOD         REAL                FARRAY      REFS     40    120      121      122      123      124      125
  2767  RUDPC        REAL                FARRAY      REFS     60  DEFINED    130
  2766  STLAPC       REAL                FARRAY      REFS     60  DEFINED    128
  2765  STLOPC       REAL                FARRAY      REFS     60  DEFINED    127
  2116  THETA        REAL                FARRAY      REFS     46
   226  TIME         REAL                FARRAY      REFS     40    129      130
  3664  XTOT         REAL                FARRAY      REFS     76  DEFINED    140
  3665  YTOT         REAL                FARRAY      REFS     76  DEFINED    141
  3666  ZTOT         REAL                FARRAY      REFS     76  DEFINED    142
```

```
      SUBROUTINE T50HS      74/175  OPT=2                        FTN 4.8+538       82/10/22. 15.12.34       PAGE     5

EXTERNALS           TYPE    ARGS         REFERENCES
      AC07                   0               134         160
      FSRCH                  5               129
      FIB         REAL       4               130

COMMON BLOCKS    LENGTH
      FARRAY       2000

STATISTICS
  PROGRAM LENGTH                  131B        89
  CM LABELED COMMON LENGTH       3720B      2000
          60000B CM USED
```

```
      SUBROUTINE AERODAT
*
*
*
*
*
*
*
      COMMON / ARDARRY / ARD(19000)
*
      EQUIVALENCE
     .(CNBAS1T,ARD(    1)),(CNBAS2T,ARD(   22)),(CNFLAPT,ARD(   59)),
     .(CNAILT ,ARD(  179)),(ALPCT  ,ARD(  194)),(CNFJIT ,ARD(  315)),
     .(CNPOWT ,ARD(  367)),(CMBAS1T,ARD(  895)),(CMBAS2T,ARD(  916)),
     .(CMFLAPT,ARD(  953)),(DCMT   ,ARD(  998)),(CMAILT ,ARD( 1016)),
     .(EPS1T  ,ARD( 1041)),(EPS2T  ,ARD( 1089)),(PKT    ,ARD( 1121)),
     .(RCT    ,ARD( 1139)),(DCMUPT ,ARD( 1153)),(DCM25T ,ARD( 1197)),
     .(DCM62T ,ARD( 1210)),(DCMPOWT,ARD( 1228)),(CMFJIT ,ARD( 1732)),
     .(CABAS1T,ARD( 1910)),(CABAS2T,ARD( 1931)),(CAFLAPT,ARD( 1968)),
     .(CAFJIT ,ARD( 2008)),(DCAT   ,ARD( 2022)),(RCAT   ,ARD( 2032)),
     .(CAAILT ,ARD( 2042)),(CAPOWT ,ARD( 2067)),(CA55T  ,ARD( 2163)),
     .(CYBAST ,ARD( 2259)),(DCYHIT ,ARD( 2275)),(CYPOWT ,ARD( 2283)),
     .(CYAILT ,ARD( 2356)),(CLLBAST,ARD( 2459)),(CLLPCWT,ARD( 2483)),
     .                     (CLLAILT,ARD( 2571)),(CLLRT  ,ARD( 2675)),
     .(CLLPT  ,ARD( 2683)),(CLNBAST,ARD( 2691)),(CLNPCWT,ARD( 2715)),
     .(DCLNHIT,ARD( 2787)),                     (CLNAILT,ARD( 2811))
*
      EQUIVALENCE
     .(CLNRT  ,ARD( 2915)),(CLNPT  ,ARD( 2923)),
     .(CNGE81T,ARD( 2939)),(CAGE81T,ARD( 3159)),(CMGE81T,ARD( 3315)),
     .(CNGE55T,ARD( 3435)),(CAGE55T,ARD( 3675)),(CMGE55T,ARD( 3915)),
     .(DCN50T ,ARD( 4155)),(DCN60T ,ARD( 4215)),(DCA50T ,ARD( 4275)),
     .(DCA60T ,ARD( 4335)),(DCM10T ,ARD( 4395)),(DCM50T ,ARD( 4515)),
     .(DCM60T ,ARD( 4575)),(RKOT   ,ARD( 4995)),(DCNPOWT,ARD( 5003)),
     .(DSFTU  ,ARD( 5051)),(RMBECOU,ARD( 5276)),(RMBE60U,ARD( 5336)),
     .(RMBEH1U,ARD( 5396)),(RMBF96U,ARD( 5606)),(RM2P47U,ARD( 5676)),
     .(YMTB00U,ARD( 5767)),(YMTB60U,ARD( 5812)),(YMTBP1U,ARD( 5857)),
     .(SFGF60U,ARD( 5932)),(SFGEP1U,ARD( 5977)),(RMGF00U,ARD( 6157)),
     .(RMATR1U,ARD( 6277)),(RM4P12U,ARD( 6487)),(RM7PC5U,ARD( 6697)),
     .(YMGF60U,ARD( 6907)),(YMGE81U,ARD( 6952)),(YMSFP1U,ARD( 7132)),
     .(YMSF60U,ARD( 7228)),(PBSF60U,ARD( 7330)),(PBSF81U,ARD( 7426))
*
      EQUIVALENCE
     .(SFTP60U,ARD( 7540)),(SFTP81U,ARD( 7708)),(SFT960U,ARD( 8128)),
     .(SFTA91U,ARD( 8224)),(DRMP60U,ARD( 8452)),(RMPPR1U,ARD( 8788)),
     .(DRMR91U,ARD( 8908)),(DRMP81U,ARD( 8988)),(PRYM60U,ARD( 9180)),
     .(PRYM91U,ARD( 9276)),(YMPF60U,ARD( 9390)),(YMPFR1U,ARD( 9486)),
     .(YMAS60U,ARD( 9726)),(YMASR1U,ARD( 9822)),(HCMB1T ,ARD(10050)),
     .(HCMB2T ,ARD(10071)),(HCMSTT ,ARD(10208)),(HCMFT  ,ARD(10848)),
     .(HCL1T  ,ARD(11448)),(HCL2T  ,ARD(11468)),
     .(CNFJI1T,ARD(11643)),(CNFJI2T,ARD(11654)),(CAFJI1T,ARD(11673)),
     .(CAFJI2T,ARD(11684)),(CMFJI1T,ARD(11703)),(CMFJI2T,ARD(11714)),
     .(HCLFT  ,ARD(11733)),(HCLAILT,ARD(12333)),
     .                     (HCMAOT ,ARD(12401)),(HCMDAT ,ARD(12407)),
     .(HCD1T  ,ARD(12455)),(HCD2T  ,ARD(12473)),(HCDAILT,ARD(12457)),
     .(HCDSTT ,ARD(12837)),(HCDDRT ,ARD(13033)),(HCMPOWT,ARD(13065)),
     .(HCMQT  ,ARD(14121)),(HCNDAT ,ARD(14232)),(HCNDRT ,ARD(14488))
```

```
      *                                                                                   YAERO      58
        EQUIVALENCE                                                                       YAERO      59
       .(HCNRT  ,ARD(14536)),(HCNPT  ,ARD(14560)),(HCLBT  ,ARD(14572)),                   YAERO      60
       .                                          (HCLLOAT,ARD(14680)),                   YAERO      61
       .(HCLLORT,ARD(14936)),(HCLIRT ,ARD(14984)),(HCLLPT ,ARD(15014)),                   YAERO      62
       .(HCYBT  ,ARD(15044)),                                                             YAERO      63
       .(HCYDAT ,ARD(15236)),(HCYDRT ,ARD(15284)),(HCYRT  ,ARD(15332)),                   YAERO      64
       .(HCL9FT ,ARD(17246)),                     (HCMANT ,ARD(17846)),                   YAERO      65
       .                     (HCDFT  ,ARD(18386)),(DCMFJIT,ARD(18836))                    YAERO      66
      *                                                                                   YAERO      67
        DIMENSION                                                                         YAERO      68
       .CNBAS1T(21),    CNBAS2T(37),    CNFLAPT(120),                                     YAERO      69
       .CNAILT(15),     ALPCT(121),     CNFJIT(52),                                       YAERO      70
       .CNPOWT(528),    CMBAS1T(21),    CMBAS2T(37),                                      YAERO      71
       .CMFLAPT(45),    DCMT(18),       CMAILT(25),                                       YAERO      72
       .EPS1T(48),      EPS2T(32),      RKT(18),                                          YAERO      73
       .RCT(14),        DCMUPT(44),     DCM25T(13),                                       YAERO      74
       .DCM62T(18),     DCMPOWT(504),   CMFJIT(178),                                      YAERO      75
       .CABAS1T(21),    CABAS2T(37),    CAFLAPT(40),                                      YAERO      76
       .CAFJIT(14),     DCAT(10),       RCAT(10),                                         YAERO      77
       .CAAILT(25),     CAPOWT(96),     CA55T(96),                                        YAERO      78
       .CYBAST(16),     DCYHIT(8),      CYPOWT(72)                                        YAERO      79
        DIMENSION                                                                         YAERO      80
       .CYAILT(104),    CLLBAST(24),    CLLPOWT(72),                                      YAERO      81
       .                CLLAILT(104),   CLLRT(8),                                         YAERO      82
       .CLLPT(8),       CLNBAST(24),    CLNPOWT(72),                                      YAERO      83
       .DCLNHIT(8),                     CLNAILT(104),                                     YAERO      84
       .CLNRT(8),       CLNPT(8),                                                         YAERO      85
       .CNGE81T(220),   CAGEA1T(156),   CMGE81T(120),                                     YAERO      86
       .CNGE55T(240),   CAGE55T(240),   CMGE55T(240),                                     YAERO      87
       .DCN50T(60),     DCN60T(60),     DCA50T(60),                                       YAERO      88
       .DCA60T(60),     DCM10T(120),    DCM50T(60),                                       YAERO      89
       .DCM60T(60),     RKOT(8),        DCNPOWT(48)                                       YAERO      90
        DIMENSION                                                                         YAERO      91
       .DSFTU(225),     RMBE00U(60),    RMAF60U(60),                                      YAERO      92
       .RMBE81U(210),   RMBE96U(70),    RM2P47U(91),                                      YAERO      93
       .YMTR00U(45),    YMTR60U(45),    YMTR81U(75),                                      YAERO      94
       .SFGE60U(45),    SFGE81U(180),   RMGE00U(120),                                     YAERO      95
       .RMAT91U(210),   RM4P12U(210),   RM7P05U(210),                                     YAERO      96
       .YMGE60U(45),    YMGE81U(180),   YMSF81U(96),                                      YAERO      97
       .YMSF60U(102),   PBSF60U(96),    PBSF81U(114),                                     YAERO      98
       .SFTP60U(168),   SFTP81U(420),   SFTB60U(96),                                      YAERO      99
       .SFTB81U(228),   DRMP60U(336),   RMPB81U(120),                                     YAERO     100
       .DRMB81U(80),    DRMP81U(192),   PBYM60U(96),                                      YAERO     101
       .PBYM81U(114),   YMPE60U(96),    YMPE81U(240),                                     YAERO     102
       .YMBS60U(96),    YMBS81U(228)                                                      YAERO     103
        DIMENSION                                                                         YAERO     104
       .HCMB1T(23),     HCMB2T(135),    HCMSTT(640),                                      YAERO     105
       .HCMFT(600),     HCL1T(20),      HCL2T(135),                                       YAERO     106
       .                CNFJI1T(11),    CNFJI2T(19),                                      YAERO     107
       .CAFJI1T(11),    CAFJI2T(19),    CMFJI1T(11),                                      YAERO     108
       .CMFJI2T(19),    HCLFT(600),     HCLAILT(20),                                      YAERO     109
       .                                HCMADT(6),                                        YAERO     110
       .HCMDAT(40),     HCD1T(14),      HCD2T(184),                                       YAERO     111
       .HCDAILT(190),   HCDSFT(196),    HCDDRT(32),                                       YAERO     112
       .HCMPOWT(1056),HCMDT(5),         HCHDAT(256),                                      YAERO     113
       .HCMDRT(48),     HCNPT(24),      HCNPT(18),                                        YAERO     114
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          .HCLRT(90),                                                      YAERO   115
          .HCLLDAT(256), HCLLDRT(48),    HCLLRT(30),                       YAERO   116
          .HCLLPT(30),   HCYRT(180),                                       YAERO   117
                         HCYDAT(48),     HCYDRT(48)                        YAERO   118
          .                                                                YAERO   119
           DIMENSION                                                       YAERO   120
          .HCYRT(6),                                                       YAERO   121
          .HCLAFT(90),                                                     YAERO   122
          .HCNBHT(90),                                                     YAERO   123
          .HCDET(450),                                                     YAERO   124
          .DCMFJIT(4)                                                      YAERO   125
      *                                                                    YAERO   126
      *    BASELINE NORMAL FORCE (LOW SPEED), ALP=-10.,30. IN 2 DEG INCREMENTYAERO 127
      *                                                                    YAERO   128
           DATA CNBAS1T/                                                   YAERO   129
          .-0.715,  -0.563,  -0.412,  -0.260,  -0.120,   0.015,   0.160,   YAERO   130
          . 0.300,   0.440,   0.580,   0.715,   0.845,   0.960,   1.060,   YAERO   131
          . 1.125,   1.180,   1.240,   1.295,   1.330,   1.360,   1.380/   YAERO   132
      *                                                                    YAERO   133
      *    BASELINE NORMAL FORCE (LOW SPEED), ALP=-180.,180. IN 10 DEG INCREMYAERO 134
      *                                                                    YAERO   135
           DATA CNBAS2T/                                                   YAERO   136
          . 0.000,  -0.715,  -1.180,  -1.380,  -1.480,  -1.530,  -1.560,   YAERO   137
          .-1.580,  -1.595,  -1.600,  -1.595,  -1.580,  -1.560,  -1.530,   YAERO   138
          .-1.480,  -1.380,  -1.180,  -0.715,   0.015,   0.715,   1.180,   YAERO   139
          . 1.380,   1.480,   1.530,   1.560,   1.580,   1.595,   1.600,   YAERO   140
          . 1.595,   1.580,   1.560,   1.530,   1.480,   1.380,   1.180,   YAERO   141
          . 0.715,   0.000/                                                YAERO   142
      *                                                                    YAERO   143
      *    INCREMENTAL NORMAL FORCE DUE TO FLAP DEFLECTION, PER FLAP (LOW SPEYAERO 144
      *    ALPC=-5.,30. IN 5 DEG INCR, DFLAP=0.,80. IN 20 DEG INCR AND     YAERO   145
      *    THETAJ=0.,55.,100. DEG.                                         YAERO   146
      *                                                                    YAERO   147
           DATA (CNFLAPT(I),I=1,64)/                                       YAERO   148
          .8*0.0,                                                          YAERO   149
          . 0.208,   0.195,   0.183,   0.160,   0.133,   0.125,   0.120,   YAERO   150
          . 0.120,                                                         YAERO   151
          . 0.360,   0.345,   0.333,   0.305,   0.268,   0.235,   0.218,   YAERO   152
          . 0.203,                                                         YAERO   153
          . 0.455,   0.448,   0.438,   0.430,   0.380,   0.330,   0.280,   YAERO   154
          . 0.228,                                                         YAERO   155
          . 0.505,   0.505,   0.505,   0.505,   0.490,   0.405,   0.308,   YAERO   156
          . 0.243,                                                         YAERO   157
          .8*0.0,                                                          YAERO   158
          . 0.198,   0.185,   0.178,   0.153,   0.130,   0.125,   0.120,   YAERO   159
          . 0.120,                                                         YAERO   160
          . 0.350,   0.335,   0.318,   0.295,   0.263,   0.235,   0.218,   YAERO   161
          . 0.203/                                                         YAERO   162
           DATA (CNFLAPT(I),I=65,128)/                                     YAERO   163
          . 0.448,   0.440,   0.428,   0.410,   0.378,   0.330,   0.280,   YAERO   164
          . 0.228,                                                         YAERO   165
          . 0.508,   0.508,   0.508,   0.508,   0.495,   0.405,   0.308,   YAERO   166
          . 0.243,                                                         YAERO   167
          .8*0.0,                                                          YAERO   168
          . 0.168,   0.163,   0.155,   0.143,   0.130,   0.125,   0.120,   YAERO   169
          . 0.120,                                                         YAERO   170
          . 0.308,   0.298,   0.293,   0.272,   0.255,   0.235,   0.218,   YAERO   171
          . 0.203,
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      . 0.405,   0.400,   0.393,   0.370,   0.350,   0.330,   0.280,     YAERO      172
      . 0.228,                                                          YAERO      173
      . 0.470,   0.470,   0.470,   0.470,   0.465,   0.405,   0.308,     YAERO      174
      . 0.243/                                                          YAERO      175
*                                                                       YAERO      176
*      NORMAL FORCE DUE TO AILERON DEFLECTION (DROOPED AILERONS), PER AILYAERO     177
*      DA=-30,-15,0,15,30 AND ALP=-4,10,24 (LOW SPEED)                  YAERO      178
*                                                                       YAERO      179
       DATA CNAILT/                                                     YAERO      180
      .-0.110,  -0.075,   0.090,   0.070,   0.062,                      YAERO      181
      .-0.080,  -0.075,   0.000,   0.064,   0.018,                      YAERO      182
      .-0.010,  -0.019,   0.000,   0.010,   0.000/                      YAERO      183
*                                                                       YAERO      184
*      DELTA CORRECTION TO FLAP AOA, THETAJ=0,100 IN 10 DEG INCR AND    YAERO      185
*      VEQ=.05,.5 IN .05 INCP AND =1.0 FOR LAST VALUE                   YAERO      186
*                                                                       YAERO      187
       DATA ALPCT/                                                      YAERO      188
      .-3.6, -6.6, -7.8, -9.0, -10.2, -11.4, -12.2, -12.8, -13.3,       YAERO      189
      .-13.8, -14.4,                                                    YAERO      190
      .-1.4, -2.0, -2.1, -2.2, -2.3, -2.4, -2.5, -2.8, -3.0, -3.3, -3.6, YAERO     191
      .11*0.0,                                                          YAERO      192
      . 0.8, 1.1, 1.2, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8, 2.0, 2.2,          YAERO      193
      . 1.5, 2.0, 2.1, 2.2, 2.2, 2.4, 2.6, 2.8, 3.2, 3.6, 3.9,          YAERO      194
      . 1.9, 2.4, 2.6, 2.7, 2.9, 3.0, 3.2, 3.7, 4.1, 4.5, 5.0,          YAERO      195
      . 2.2, 2.8, 3.0, 3.1, 3.3, 3.4, 3.9, 4.2, 4.8, 5.2, 5.7,          YAERO      196
      . 2.4, 3.1, 3.2, 3.3, 3.6, 3.8, 4.1, 4.6, 5.2, 5.7, 6.2,          YAERO      197
      . 2.6, 3.3, 3.5, 3.6, 3.8, 4.0, 4.4, 5.0, 5.5, 6.1, 6.7,          YAERO      198
      . 2.7, 3.5, 3.7, 3.9, 4.0, 4.2, 4.5, 5.2, 5.9, 6.4, 7.0,          YAERO      199
      . 3.0, 4.2, 4.3, 4.4, 4.6, 4.8, 5.2, 5.8, 6.5, 7.2, 7.8/          YAERO      200
*                                                                       YAERO      201
*      NORMAL FORCE DUE TO FLAP JET INTERFERENCE (LOW SPEED),           YAERO      202
*      ALPC=-4,6,16,26 AND VEQ=.1,.7 IN .05 INCREMENTS                  YAERO      203
*                                                                       YAERO      204
       DATA CNFJIT/                                                     YAERO      205
      . 1.85, 1.92, 1.99, 2.65,                                         YAERO      206
      . 0.81, 0.95, 0.88, 1.18,                                         YAERO      207
      . 0.46, 0.47, 0.47, 0.64,                                         YAERO      208
      . 0.30, 0.29, 0.27, 0.37,                                         YAERO      209
      . 0.22, 0.19, 0.16, 0.23,                                         YAERO      210
      . 0.17, 0.13, 0.10, 0.14,                                         YAERO      211
      . 0.13, 0.10, 0.07, 0.10,                                         YAERO      212
      . 0.11, 0.07, 0.05, 0.09,                                         YAERO      213
      . 0.09, 0.06, 0.04, 0.07,                                         YAERO      214
      . 0.07, 0.05, 0.04, 0.07,                                         YAERO      215
      . 0.06, 0.04, 0.04, 0.07,                                         YAERO      216
      . 0.05, 0.04, 0.04, 0.07,                                         YAERO      217
      . 0.04, 0.04, 0.04, 0.07/                                         YAERO      218
*                                                                       YAERO      219
*      NORMAL FORCE DUE TO POWER EFFECTS (LOW SPEED), THETAJ=0,100 IN 20 YAERO     220
*      INCREMENTS, VEQ=.05,.1,.15,.2,.25,.3,.35,.4,.6,.8,1. AND ALP=-4,24YAERO     221
*      4 DEG INCREMENTS                                                 YAERO      222
*                                                                       YAERO      223
       DATA (CNPOWI(I),I=1,66)/                                         YAERO      224
      . -0.510,  -0.950,  -1.175,  -1.340,  -1.465,  -1.570,            YAERO      225
      . -0.345,  -0.470,  -0.540,  -0.620,  -0.700,  -0.780,            YAERO      226
      . -0.235,  -0.320,  -0.380,  -0.445,  -0.510,  -0.570,            YAERO      227
      . -0.175,  -0.240,  -0.300,  -0.350,  -0.390,  -0.430,            YAERO      228
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ORIGINAL PAGE IS
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     . -0.131,  -0.190,  -0.245,  -0.285,  -0.311,  -0.340,          YAERO     229
     . -0.100,  -0.154,  -0.205,  -0.240,  -0.260,  -0.285,          YAERO     230
     . -0.060,  -0.095,  -0.120,  -0.130,  -0.150,  -0.170,          YAERO     231
     . -0.020,  -0.060,  -0.070,  -0.080,  -0.090,  -0.110,          YAERO     232
     . -0.010,  -0.030,  -0.030,  -0.040,  -0.050,  -0.060,          YAERO     233
     .  0.000,  -0.010,  -0.010,  -0.010,  -0.020,  -0.020,          YAERO     234
     .6*0.000/                                                       YAERO     235
      DATA (CNPOWT(I),I=67,132)/                                     YAERO     236
     . -0.470,  -0.905,  -1.130,  -1.295,  -1.420,  -1.530,          YAERO     237
     . -0.310,  -0.450,  -0.535,  -0.615,  -0.705,  -0.780,          YAERO     238
     . -0.210,  -0.320,  -0.385,  -0.445,  -0.510,  -0.570,          YAERO     239
     . -0.142,  -0.240,  -0.300,  -0.350,  -0.395,  -0.432,          YAERO     240
     . -0.105,  -0.200,  -0.250,  -0.290,  -0.320,  -0.350,          YAERO     241
     . -0.080,  -0.162,  -0.210,  -0.240,  -0.270,  -0.290,          YAERO     242
     . -0.060,  -0.095,  -0.120,  -0.130,  -0.150,  -0.170,          YAERO     243
     . -0.020,  -0.060,  -0.070,  -0.080,  -0.090,  -0.110,          YAERO     244
     . -0.010,  -0.030,  -0.030,  -0.040,  -0.050,  -0.060,          YAERO     245
     .  0.000,  -0.010,  -0.010,  -0.010,  -0.020,  -0.020,          YAERO     246
     .6*0.000/                                                       YAERO     247
      DATA (CNPOWT(I),I=133,198)/                                    YAERO     248
     . -0.440,  -0.875,  -1.095,  -1.260,  -1.390,  -1.505,          YAERO     249
     . -0.230,  -0.440,  -0.530,  -0.620,  -0.705,  -0.790,          YAERO     250
     . -0.210,  -0.310,  -0.390,  -0.450,  -0.510,  -0.565,          YAERO     251
     . -0.160,  -0.240,  -0.290,  -0.350,  -0.390,  -0.440,          YAERO     252
     . -0.120,  -0.195,  -0.245,  -0.285,  -0.320,  -0.360,          YAERO     253
     . -0.092,  -0.160,  -0.210,  -0.240,  -0.270,  -0.302,          YAERO     254
     . -0.050,  -0.070,  -0.100,  -0.110,  -0.130,  -0.170,          YAERO     255
     . -0.030,  -0.040,  -0.040,  -0.060,  -0.070,  -0.100,          YAERO     256
     . -0.010,  -0.010,  -0.010,  -0.020,  -0.030,  -0.040,          YAERO     257
     .6*0.000,                                                       YAERO     258
     .6*0.000/                                                       YAERO     259
      DATA (CNPOWT(I),I=199,264)/                                    YAERO     260
     . -0.405,  -0.860,  -1.070,  -1.240,  -1.370,  -1.480,          YAERO     261
     . -0.265,  -0.430,  -0.520,  -0.605,  -0.700,  -0.790,          YAERO     262
     . -0.195,  -0.295,  -0.365,  -0.440,  -0.510,  -0.570,          YAERO     263
     . -0.140,  -0.220,  -0.280,  -0.340,  -0.385,  -0.435,          YAERO     264
     . -0.100,  -0.170,  -0.230,  -0.275,  -0.310,  -0.340,          YAERO     265
     . -0.070,  -0.130,  -0.190,  -0.230,  -0.260,  -0.290,          YAERO     266
     . -0.040,  -0.080,  -0.110,  -0.130,  -0.160,  -0.170,          YAERO     267
     . -0.020,  -0.040,  -0.060,  -0.070,  -0.100,  -0.110,          YAERO     268
     . -0.010,  -0.020,  -0.030,  -0.040,  -0.060,  -0.070,          YAERO     269
     .  0.000,   0.000,  -0.010,  -0.010,  -0.020,  -0.030,          YAERO     270
     .6*0.000/                                                       YAERO     271
      DATA (CNPOWT(I),I=265,330)/                                    YAERO     272
     . -0.380,  -0.850,  -1.070,  -1.240,  -1.375,  -1.490,          YAERO     273
     . -0.235,  -0.420,  -0.510,  -0.610,  -0.710,  -0.800,          YAERO     274
     . -0.160,  -0.290,  -0.360,  -0.440,  -0.510,  -0.590,          YAERO     275
     . -0.110,  -0.220,  -0.280,  -0.340,  -0.390,  -0.450,          YAERO     276
     . -0.075,  -0.170,  -0.225,  -0.275,  -0.315,  -0.345,          YAERO     277
     . -0.050,  -0.130,  -0.185,  -0.230,  -0.260,  -0.280,          YAERO     278
     . -0.030,  -0.090,  -0.120,  -0.150,  -0.190,  -0.220,          YAERO     279
     . -0.030,  -0.060,  -0.090,  -0.120,  -0.150,  -0.180,          YAERO     280
     . -0.020,  -0.050,  -0.070,  -0.100,  -0.130,  -0.160,          YAERO     281
     . -0.020,  -0.050,  -0.070,  -0.100,  -0.130,  -0.160,          YAERO     282
     . -0.020,  -0.050,  -0.070,  -0.100,  -0.130,  -0.160/          YAERO     283
      DATA (CNPOWT(I),I=331,396)/                                    YAERO     284
     . -0.325,  -0.810,  -1.040,  -1.210,  -1.350,  -1.460,          YAERO     285
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     . -0.160,  -0.300,  -0.385,  -0.545,  -0.680,  -0.770,                 YAERO    286
     . -0.065,  -0.250,  -0.320,  -0.410,  -0.485,  -0.570,                 YAERO    287
     . -0.025,  -0.180,  -0.240,  -0.320,  -0.380,  -0.440,                 YAERO    288
     .  0.000,  -0.140,  -0.200,  -0.270,  -0.315,  -0.360,                 YAERO    289
     . -0.020,  -0.110,  -0.165,  -0.230,  -0.270,  -0.310,                 YAERO    290
     . -0.020,  -0.070,  -0.120,  -0.190,  -0.220,  -0.250,                 YAERO    291
     . -0.020,  -0.060,  -0.100,  -0.170,  -0.190,  -0.210,                 YAERO    292
     . -0.020,  -0.060,  -0.090,  -0.160,  -0.180,  -0.200,                 YAERO    293
     . -0.020,  -0.060,  -0.090,  -0.150,  -0.180,  -0.200,                 YAERO    294
     . -0.020,  -0.060,  -0.090,  -0.150,  -0.180,  -0.200/                 YAERO    295
      DATA (CNPOWT(I),I=397,462)/                                           YAERO    296
     . -0.150,  -0.650,  -0.880,  -1.060,  -1.200,  -1.320,                 YAERO    297
     . -0.020,  -0.240,  -0.355,  -0.450,  -0.535,  -0.630,                 YAERO    298
     .  0.025,  -0.165,  -0.243,  -0.318,  -0.385,  -0.450,                 YAERO    299
     .  0.040,  -0.125,  -0.199,  -0.275,  -0.325,  -0.380,                 YAERO    300
     .  0.045,  -0.110,  -0.168,  -0.240,  -0.290,  -0.340,                 YAERO    301
     .  0.038,  -0.100,  -0.150,  -0.220,  -0.270,  -0.310,                 YAERO    302
     . -0.020,  -0.050,  -0.120,  -0.200,  -0.230,  -0.270,                 YAERO    303
     . -0.030,  -0.050,  -0.120,  -0.190,  -0.220,  -0.250,                 YAERO    304
     . -0.030,  -0.050,  -0.120,  -0.190,  -0.210,  -0.240,                 YAERO    305
     . -0.030,  -0.050,  -0.120,  -0.190,  -0.210,  -0.240,                 YAERO    306
     . -0.030,  -0.050,  -0.120,  -0.190,  -0.210,  -0.240/                 YAERO    307
      DATA (CNPOWT(I),I=463,528)/                                           YAERO    308
     . -0.040,  -0.470,  -0.700,  -0.890,  -1.020,  -1.140,                 YAERO    309
     .  0.050,  -0.250,  -0.375,  -0.490,  -0.640,  -0.810,                 YAERO    310
     .  0.100,  -0.165,  -0.260,  -0.355,  -0.470,  -0.580,                 YAERO    311
     .  0.120,  -0.130,  -0.200,  -0.285,  -0.365,  -0.440,                 YAERO    312
     .  0.122,  -0.105,  -0.170,  -0.240,  -0.310,  -0.375,                 YAERO    313
     .  0.120,  -0.090,  -0.150,  -0.215,  -0.275,  -0.330,                 YAERO    314
     .  0.030,  -0.070,  -0.120,  -0.180,  -0.230,  -0.280,                 YAERO    315
     .  0.000,  -0.060,  -0.110,  -0.170,  -0.210,  -0.250,                 YAERO    316
     .  0.000,  -0.050,  -0.100,  -0.150,  -0.200,  -0.220,                 YAERO    317
     .  0.000,  -0.050,  -0.100,  -0.150,  -0.200,  -0.220,                 YAERO    318
     .  0.000,  -0.050,  -0.100,  -0.150,  -0.200,  -0.220/                 YAERO    319
*                                                                           YAERO    320
*     BASELINE PM (LOW SPEED), ALP=-10.,30. IN 2 DEG INCREMENTS             YAERO    321
*                                                                           YAERO    322
      DATA CMBAS1T/                                                         YAERO    323
     . 0.095,   0.070,   0.047,   0.026,   0.006,  -0.015,  -0.036,         YAERO    324
     .-0.057,  -0.081,  -0.106,  -0.131,  -0.160,  -0.190,  -0.225,         YAERO    325
     .-0.259,  -0.296,  -0.330,  -0.360,  -0.390,  -0.420,  -0.450/         YAERO    326
*                                                                           YAERO    327
*     BASELINE PM (LOW SPEED), ALP=-180.,180. IN 10 DEG INCREMENTS          YAERO    328
*                                                                           YAERO    329
      DATA CMBAS2T/                                                         YAERO    330
     . 0.300,   0.180,   0.330,   0.450,   0.550,   0.619,   0.662,         YAERO    331
     . 0.697,   0.719,   0.725,   0.719,   0.697,   0.662,   0.619,         YAERO    332
     . 0.550,   0.440,   0.250,   0.095,  -0.015,  -0.131,  -0.296,         YAERO    333
     .-0.450,  -0.550,  -0.619,  -0.662,  -0.697,  -0.719,  -0.725,         YAERO    334
     .-0.719,  -0.697,  -0.662,  -0.619,  -0.550,  -0.450,  -0.330,         YAERO    335
     .-0.180,   0.000/                                                      YAERO    336
*                                                                           YAERO    337
*     INCREMENTAL PM DUE TO FLAP DEFLECTION, PER FLAP (LOW SPEED)           YAERO    338
*     ALPC=-4,28 IN 4 DEG INCR AND DFLAP=0.,80. IN 20 DEG INCR              YAERO    339
**                                                                          YAERO    340
      DATA CMFLAPT/                                                         YAERO    341
     .9*0.0,                                                                YAERO    342
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      .-.0155,  -.0150,  -.0140,  -.0125,  -.0105,  -.0080,  -.0065,      YAERO     343
      .-.0055,  -.0040,                                                   YAERO     344
      .-.0305,  -.0299,  -.0290,  -.0275,  -.0255,  -.0270,  -.0190,      YAERO     345
      .-.0220,  -.0240,                                                   YAERO     346
      .-.0445,  -.0449,  -.0460,  -.0472,  -.0500,  -.0575,  -.0375,      YAERO     347
      .-.0520,  -.0590,                                                   YAERO     348
      .-.0570,  -.0605,  -.0640,  -.0680,  -.0810,  -.0970,  -.0620,      YAERO     349
      .-.0890,  -.0960/                                                   YAERO     350
*                                                                         YAERO     351
*     INCREMENTAL PM DUE TO FLAP,VEQ,ALP, AND THETAJ (LOW SPEED)          YAERO     352
*     THETAJ=50 TO 100 DEG; DF=25,61.7 DEG; ALP=-4,10,24 DEG, VEQ=.15,    YAERO     353
*       .40                                                               YAERO     354
*                                                                         YAERO     355
      DATA DCMT/                                                          YAERO     356
      .3*0.0,                                                             YAERO     357
      .3*0.0,                                                             YAERO     358
      .3*0.0,                                                             YAERO     359
      ..013, .024, -.015,                                                 YAERO     360
      .3*0.0,                                                             YAERO     361
      ..033, .054, .C83/                                                  YAERO     362
*                                                                         YAERO     363
*     PM DUE TO AILERON DEFL (LOW SPEED), DA=-30,30 IN 15 DEG INCR AND    YAERO     364
*     ALP=-4,28 IN 8 DEG INCR                                             YAERO     365
*                                                                         YAERO     366
      DATA CMAILT/                                                        YAERO     367
      .0.07, 0.049, 0.0, -0.05, -0.034,                                   YAERO     368
      .0.07, 0.049, 0.0, -0.041, -0.030,                                  YAERO     369
      .0.07, 0.049, 0.0, -0.034, -0.026,                                  YAERO     370
      .0.07, 0.049, 0.0, -0.028, -0.022,                                  YAERO     371
      .0.07, 0.049, 0.0, -0.023, -0.018/                                  YAERO     372
*                                                                         YAERO     373
*     DOWNWASH ANGLE (LOW SPEED) FLAPS UP ,ALP=-4,24 IN 4 DEG INCR AND    YAERO     374
*     VEQ=0,1 IN 0.2 INCR                                                 YAERO     375
*                                                                         YAERO     376
      DATA EPS1T/                                                         YAERO     377
      . -5.5, -1.5, 2.5, 6.5, 10.5, 14.5, 18.5, 22.5,                     YAERO     378
      . -2.6,  0.8, 4.2, 7.4, 10.5, 13.4, 15.8, 17.4,                     YAERO     379
      . -1.2,  2.1, 5.2, 8.0, 10.6, 12.8, 13.8, 13.6,                     YAERO     380
      . -0.5,  2.6, 5.4, 8.0, 10.4, 12.2, 12.8, 12.8,                     YAERO     381
      . -0.2,  2.6, 5.3, 7.8, 10.2, 12.0, 12.4, 12.1,                     YAERO     382
      .  0.0,  2.3, 4.8, 7.3,  9.8, 11.6, 12.2, 11.6/                     YAERO     383
*                                                                         YAERO     384
*     DOWNWASH ANGLE (LOW SPEED) ALP=-4,24 IN 4 DEG INCR, VEQ=0.3,AND 1.YAERO     385
*     FLAP=25 AND 61.7                                                    YAERO     386
*                                                                         YAERO     387
      DATA EPS2T/                                                         YAERO     388
      . 9.0, 13.0, 16.8, 20.6, 24.2, 27.7, 29.8, 27.4,                    YAERO     389
      . 7.0, 10.2, 13.2, 15.6, 17.1, 14.3, 10.0, 9.0,                     YAERO     390
      .13.2, 16.6, 20.0, 23.3, 26.6, 30.0, 33.4, 36.8,                    YAERO     391
      . 8.1, 11.4, 14.6, 17.4, 19.6, 21.1, 20.0, 16.6/                    YAERO     392
*                                                                         YAERO     393
*     CORRECTION FACTOR FOR PM DUE TO STABILATOR AT ZERO DEG FLAPS        YAERO     394
*     THETAJ=0,10 DEG;VEG=0.0,0.8 IN INCREMENTS OF 0.1                    YAERO     395
*                                                                         YAERO     396
      DATA RKT/                                                           YAERO     397
      .7.4, 5.2, 3.0, 1.6, 1.14, 1.05, 1.02, 1.01, 1.0,                   YAERO     398
      .9*1.0/                                                             YAERO     399
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*
*     CORRECTION FACTOR FOR PM DUE TO STABILATOR AT 62 DEG FLAPS
*     ALP=0,24 IN 4 DEG INCR; VEO=0.3,1.0
*
      DATA PCT/
     .5*1.0, 0.91, 0.74,
     .1.0, 0.96, 0.94, 0.88, 0.82, 0.67, 0.43/
*
*     PM DUE TO STAB AT ZERO DEG FLAPS, ALPT=-25,25 IN 5 DEG INCR, ALP=8
*     AND 15 DEG, VFO=0.4 AND 1.0
*
      DATA DCMUPT/
     .0.5625, 0.4500, 0.3375, 0.2250, 0.1125, 0.0, -0.1125, -0.2250,
     .-0.3375, -0.4500, -0.5625,
     .0.6300, 0.5040, 0.3780, 0.2520, 0.1260, 0.0, -0.1260, -0.2520,
     .-0.3780, -0.5040, -0.6300,
     .0.4130, 0.3750, 0.3080, 0.2100, 0.1050, 0.0, -0.1100, -0.2110,
     .-0.2950, -0.3590, -0.4060,
     .0.4130, 0.3750, 0.3080, 0.2100, 0.1050, 0.0, -0.1100, -0.2110,
     .-0.2950, -0.3590, -0.4060/
*
*     PM DUE TO STAB AT 25 DEG FLAPS, ALPT=-30,30 IN 5 DEG INCR
*
      DATA DCM25T/
     .0.335, 0.346, 0.310, 0.248, 0.170, 0.085, 0.0, -0.080, -0.151,
     .-0.215, -0.266, -0.312, -0.350/
*
*     PM DUE TO STAB AT 61.7 DEG FLAPS, ALPT=-40.,0. IN 5 DEG INCR,
*     VEO=0.3 AND 1.0
*
      DATA DCM62T/
     .0.35, 0.38, 0.365, 0.325, 0.272, 0.214, 0.145, 0.075, 0.0,
     .0.273, 0.344, 0.391, 0.402, 0.365, 0.295, 0.210, 0.110, 0.0/
*
*     PM DUE TO POWER EFFECTS (LOW SPEED), ALP=-4,24 IN 4 DEG INCR,
*     VEO=0.05,0.65 IN 0.10 INCR AND THETAJ=0,70 IN 10 DEG INCR
*
      DATA(DCMPOWT(I),I=1,112)/
     .-0.120, -0.150, -0.195, -0.250, -0.315, -0.400, -0.550, -0.680,
     .-0.010, -0.025, -0.055, -0.090, -0.145, -0.200, -0.345, -0.445,
     . 0.030,  0.020,  0.005, -0.010, -0.041, -0.085, -0.185, -0.255,
     . 0.030,  0.029,  0.021,  0.016,  0.005, -0.020, -0.077, -0.134,
     . 0.028,  0.028,  0.028,  0.025,  0.023,  0.015, -0.010, -0.046,
     . 8*0.025,
     . 8*0.022,
     . 0.204,  0.215,  0.229,  0.245,  0.234,  0.221,  0.210,  0.150,
     . 0.145,  0.159,  0.170,  0.185,  0.180,  0.156,  0.156,  0.095,
     . 0.096,  0.106,  0.119,  0.131,  0.129,  0.117,  0.106,  0.045,
     . 0.060,  0.066,  0.077,  0.086,  0.085,  0.075,  0.060,  0.010,
     . 0.034,  0.040,  0.046,  0.054,  0.052,  0.041,  0.020, -0.010,
     . 0.025,  0.029,  0.034,  0.039,  0.031,  0.021,  0.005, -0.009,
     . 0.025,  0.027,  0.029,  0.032,  0.021,  0.015,  0.013,  0.006/
      DATA(DCMPOWT(I),I=113,224)/
     . 0.225,  0.231,  0.234,  0.245,  0.258,  0.272,  0.304,  0.330,
     . 0.154,  0.163,  0.170,  0.180,  0.190,  0.198,  0.239,  0.269,
     . 0.103,  0.112,  0.118,  0.127,  0.138,  0.145,  0.189,  0.218,
     . 0.083,  0.094,  0.100,  0.109,  0.117,  0.125,  0.168,  0.197,
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     . 0.050,  0.058,  0.064,  0.068,  0.075,  0.082,  0.110,  0.146,    YAERO    457
     . 0.036,  0.044,  0.049,  0.051,  0.057,  0.062,  0.093,  0.119,    YAERO    458
     . 0.029,  0.035,  0.038,  0.038,  0.044,  0.048,  0.073,  0.094,    YAERO    459
     . 0.228,  0.237,  0.245,  0.250,  0.267,  0.294,  0.325,  0.362,    YAERO    460
     . 0.154,  0.164,  0.173,  0.182,  0.195,  0.219,  0.260,  0.294,    YAERO    461
     . 0.106,  0.116,  0.124,  0.133,  0.146,  0.166,  0.210,  0.243,    YAERO    462
     . 0.075,  0.083,  0.090,  0.100,  0.112,  0.129,  0.171,  0.203,    YAERO    463
     . 0.055,  0.060,  0.067,  0.075,  0.087,  0.101,  0.139,  0.167,    YAERO    464
     . 0.040,  0.045,  0.052,  0.058,  0.068,  0.080,  0.112,  0.136,    YAERO    465
     . 0.031,  0.035,  0.040,  0.045,  0.053,  0.062,  0.089,  0.108/    YAERO    466
      DATA(DCMPOWT(I),I=225,336)/                                        YAERO    467
     . 0.237,  0.243,  0.250,  0.257,  0.272,  0.300,  0.345,  0.387,    YAERO    468
     . 0.160,  0.170,  0.178,  0.187,  0.200,  0.234,  0.282,  0.325,    YAERO    469
     . 0.110,  0.120,  0.130,  0.139,  0.155,  0.182,  0.230,  0.270,    YAERO    470
     . 0.077,  0.086,  0.094,  0.105,  0.122,  0.145,  0.190,  0.225,    YAERO    471
     . 0.055,  0.063,  0.070,  0.082,  0.097,  0.117,  0.157,  0.186,    YAERO    472
     . 0.040,  0.046,  0.053,  0.063,  0.078,  0.095,  0.127,  0.152,    YAERO    473
     . 0.030,  0.035,  0.042,  0.050,  0.062,  0.075,  0.100,  0.120,    YAERO    474
     . 0.240,  0.245,  0.253,  0.258,  0.275,  0.314,  0.365,  0.417,    YAERO    475
     . 0.169,  0.175,  0.184,  0.192,  0.208,  0.248,  0.300,  0.350,    YAERO    476
     . 0.114,  0.125,  0.134,  0.144,  0.164,  0.200,  0.249,  0.293,    YAERO    477
     . 0.079,  0.088,  0.097,  0.110,  0.132,  0.163,  0.207,  0.247,    YAERO    478
     . 0.055,  0.063,  0.072,  0.085,  0.105,  0.134,  0.170,  0.205,    YAERO    479
     . 0.040,  0.047,  0.054,  0.066,  0.084,  0.108,  0.139,  0.167,    YAERO    480
     . 0.030,  0.035,  0.041,  0.052,  0.067,  0.086,  0.110,  0.133/    YAERO    481
      DATA(DCMPOWT(I),I=337,448)/                                        YAERO    482
     . 0.242,  0.248,  0.255,  0.263,  0.278,  0.325,  0.377,  0.442,    YAERO    483
     . 0.174,  0.180,  0.187,  0.195,  0.217,  0.263,  0.318,  0.372,    YAERO    484
     . 0.113,  0.127,  0.137,  0.148,  0.173,  0.215,  0.269,  0.314,    YAERO    485
     . 0.080,  0.089,  0.102,  0.115,  0.140,  0.178,  0.225,  0.265,    YAERO    486
     . 0.056,  0.064,  0.077,  0.092,  0.113,  0.146,  0.197,  0.222,    YAERO    487
     . 0.040,  0.047,  0.059,  0.072,  0.092,  0.119,  0.153,  0.182,    YAERO    488
     . 0.030,  0.036,  0.046,  0.057,  0.074,  0.095,  0.120,  0.143,    YAERO    489
     . 0.242,  0.249,  0.256,  0.266,  0.290,  0.329,  0.390,  0.460,    YAERO    490
     . 0.176,  0.185,  0.192,  0.203,  0.225,  0.273,  0.330,  0.389,    YAERO    491
     . 0.122,  0.131,  0.139,  0.154,  0.182,  0.225,  0.280,  0.332,    YAERO    492
     . 0.082,  0.090,  0.102,  0.118,  0.147,  0.188,  0.237,  0.282,    YAERO    493
     . 0.055,  0.065,  0.077,  0.092,  0.119,  0.155,  0.199,  0.236,    YAERO    494
     . 0.039,  0.049,  0.059,  0.072,  0.096,  0.126,  0.163,  0.193,    YAERO    495
     . 0.030,  0.038,  0.045,  0.056,  0.076,  0.100,  0.130,  0.154/    YAERO    496
      DATA(DCMPOWT(I),I=449,504)/                                        YAERO    497
     . 0.240,  0.247,  0.256,  0.264,  0.285,  0.330,  0.400,  0.472,    YAERO    498
     . 0.179,  0.186,  0.194,  0.204,  0.226,  0.277,  0.340,  0.404,    YAERO    499
     . 0.126,  0.135,  0.145,  0.158,  0.184,  0.230,  0.290,  0.343,    YAERO    500
     . 0.084,  0.093,  0.106,  0.123,  0.150,  0.193,  0.247,  0.290,    YAERO    501
     . 0.058,  0.067,  0.079,  0.096,  0.123,  0.150,  0.207,  0.244,    YAERO    502
     . 0.041,  0.049,  0.060,  0.076,  0.100,  0.132,  0.170,  0.200,    YAERO    503
     . 0.030,  0.036,  0.045,  0.060,  0.074,  0.105,  0.134,  0.159/    YAERO    504
*                                                                        YAERO    505
*     PM DUE TO FLAP-JET IMPINGEMENT (LOW SPEED), VFO=.05,1.0 IN .05     YAERO    506
*     INCR UP TO .50 NEXT AND LAST VALUE FOR 1.0, ALP=-4,24 IN 4 DEG     YAERO    507
*     INCR, AND THETAJ=0 AND 10 DEG                                      YAERO    508
*                                                                        YAERO    509
      DATA(CMFJIT(I),I=1,88)/                                            YAERO    510
     .-0.465, -0.305, -0.146, -0.059, -0.033, -0.018, -0.010, -0.004,    YAERO    511
     . 0.000,  0.002,  0.010,                                            YAERO    512
     .-0.415, -0.275, -0.131, -0.050, -0.024, -0.012, -0.006, -0.001,    YAERO    513
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      . 0.002,  0.004,  0.010,                                                 YAERO    514
      .-0.340, -0.225, -0.102, -0.032, -0.068,  0.000,  0.003,  0.004,         YAERO    515
      . 0.005,  0.005,  0.010,                                                 YAERO    516
      .-0.260, -0.155, -0.068, -0.010,  0.007,  0.012,  0.011,  0.010,         YAERO    517
      . 0.010,  0.010,  0.010,                                                 YAERO    518
      .-0.190, -0.100, -0.025,  0.022,  0.028,  0.026,  0.020,  0.014,         YAERO    519
      . 0.013,  0.012,  0.020,                                                 YAERO    520
      .-0.110, -0.043,  0.019,  0.056,  0.050,  0.040,  0.028,  0.021,         YAERO    521
      . 0.016,  0.013,  0.020,                                                 YAERO    522
      . 0.000,  0.068,  0.110,  0.127,  0.102,  0.077,  0.056,  0.043,         YAERO    523
      . 0.034,  0.027,  0.020,                                                 YAERO    524
      . 0.160,  0.177,  0.192,  0.163,  0.131,  0.097,  0.069,  0.052,         YAERO    525
      . 0.040,  0.032,  0.020/                                                 YAERO    526
       DATA(CNFJIT(I),I=89,176)/                                               YAERO    527
      .-0.055, -0.043, -0.031, -0.021, -0.012, -0.005,  0.002,  0.006,         YAERO    528
      . 0.010,  0.015,  0.015,                                                 YAERO    529
      .-0.072, -0.055, -0.040, -0.030, -0.019, -0.011, -0.004,  0.007,         YAERO    530
      . 0.007,  0.012,  0.015,                                                 YAERO    531
      .-0.072, -0.055, -0.040, -0.030, -0.019, -0.011, -0.004,  0.007,         YAERO    532
      . 0.007,  0.012,  0.015,                                                 YAERO    533
      .-0.067, -0.051, -0.036, -0.025, -0.015, -0.007,  0.000,  0.005,         YAERO    534
      . 0.010,  0.015,  0.015,                                                 YAERO    535
      .-0.045, -0.033, -0.021, -0.011, -0.004,  0.002,  0.006,  0.010,         YAERO    536
      . 0.015,  0.017,  0.015,                                                 YAERO    537
      .-0.003,  0.006,  0.010,  0.006,  0.004,  0.003,  0.006,  0.010,         YAERO    538
      . 0.015,  0.017,  0.015,                                                 YAERO    539
      . 0.350,  0.063,  0.046,  0.024,  0.016,  0.014,  0.012,  0.013,         YAERO    540
      . 0.015,  0.017,  0.015,                                                 YAERO    541
      . 0.080,  0.100,  0.031,  0.053,  0.038,  0.028,  0.023,  0.019,         YAERO    542
      . 0.017,  0.017,  0.015/                                                 YAERO    543
*                                                                              YAERO    544
*      BASELINE AXIAL FORCE (LOW SPEED), ALP=-10,30 IN 2 DEG INCREMENTS        YAERO    545
*                                                                              YAERO    546
       DATA CABAS1T/                                                           YAERO    547
      .0.0042, -0.0060, -0.0160, -0.0260, -0.0300, -0.0300, -0.0220,           YAERO    548
      .-0.0080, 0.0090, 0.0320, 0.0600, 0.0920, 0.1210, 0.1400,                YAERO    549
      .0.1200, 0.0840, 0.0720, 0.0660, 0.0620, 0.0580, 0.0560/                 YAERO    550
*                                                                              YAERO    551
*      BASELINE AXIAL FORCE (LOW SPEED), ALP= -180,180 IN 10 DEG INCR          YAERO    552
*                                                                              YAERO    553
       DATA CABAS2T/                                                           YAERO    554
      .0.06, 0.0212, -0.0677, -0.056, -0.042, -0.031, -0.02, -0.012,           YAERO    555
      .-0.005, 0., 0.005, 0.012, 0.020, 0.031, 0.042, 0.056, 0.0677,          YAERO    556
      .0.0042, -0.030, 0.06, 0.085, 0.056, 0.042, 0.031, 0.02, 0.012,          YAERO    557
      .0.005, 0., -0.005, -0.012, -0.02, -0.031, -0.042, -0.056, -0.0677,     YAERO    558
      .0.0212, 0.06/                                                           YAERO    559
*                                                                              YAERO    560
*      INCREMENTAL AXIAL FORCE DUE TO FLAP DEFLECTION, PER FLAP (LOW           YAERO    561
*      SPEED) ALP=-4,24 IN 4 DEG INCR AND DFLAP=0,80 IN 20 DEG INCR            YAERO    562
*                                                                              YAERO    563
       DATA CAFLAPT/                                                           YAERO    564
      .8*0.0,                                                                  YAERO    565
      .-.017, -.016, -.015, -.0135, -.01, -.0005, .0175, .0415,                YAERO    566
      .-.049, -.045, -.0405, -.0355, -.029, -.0185, -.003, .018,               YAERO    567
      .-.091, -.0835, -.075, -.0655, -.0555, -.044, -.03, -.0095,              YAERO    568
      .-.135, -.124, -.113, -.1015, -.09, -.0785, -.065, -.045/                YAERO    569
*                                                                              YAERO    570
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*     INCREMENTAL AXIAL FORCE DUE TO FLAP-JET INTERFERENCE
*     VEQ=.05,.70 IN INCREMENTS OF .05
*
      DATA CAFJIT/
     . -.8, -.52, -.309, -.175, -.095, -.042, -.019, -.011, -.008,
     . -.005, -.004, -.003, -.002, 0./
*
*     DELTA CORRECTION TO AXIAL FORCE DUE TO FLAP, VEQ=.08,.44,.04 INCR
*
      DATA DCAT/
     ..02, .0115, -.004, -.018, -.028, -.033, -.033, -.0285, -.018, 0./
*
*     K FACTOR FOR DELTA CORRECTION, VEQ=.08,.44 IN .04 INCR
*
      DATA RCAT/
     .0.8, .79, .73, .58, .455, .385, .345, .325, .32, .32/
*
*     AXIAL FORCE DUE TO AILERON DEFLECTION (LOW SPEED), PER AILERON
*     DA=-30,30 IN 15 DEG INCR AND ALP=-4,28 IN 8 DEG INCREMENTS
*
      DATA CAAILT/
     .-.024, -.012, 0., .0045, -.001,
     .-.033, -.0165, 0., .0045, -.001,
     .-.056, -.028, 0., .0045, -.001,
     .-.013, -.009, 0., -.0065, -.023,
     .3*0., -.0065, -.023/
*
*     AXIAL FORCE DUE TO POWER EFFECTS, ALP=12,24 IN 4 DEG INCR,
*     VEQ=.05,.8 IN .05 INCR AND THETAJ=0 AND 10 DEG
*
      DATA (CAPOWT(I),I=1,48)/
     .-.161, -.144, -.131, -.135,
     .-.115, -.100, -.087, -.090,
     .-.072, -.057, -.043, -.049,
     .-.043, -.031, -.015, -.025,
     .-.027, -.017, -.001, -.011,
     .-.018, -.009,  .006, -.004,
     .-.013, -.005,  .010, 0.000,
     .-.003, -.002,  .013,  .002,
     .-.004, 0.003,  .016,  .004,
     .-.001, 0.030,  .016,  .006,
     .0.000, 0.000,  .017,  .008,
     .0.000, 0.000,  .017,  .008/
      DATA (CAPOWT(I),I=49,96)/
     .-.040, -.040, -.008, -.027,
     .-.031, -.031, -.001, -.019,
     .-.024, -.024,  .005, -.012,
     .-.013, -.013,  .010, -.007,
     .-.014, -.014,  .015, -.002,
     .-.010, -.010,  .018,  .002,
     .-.006, -.006,  .021,  .005,
     .-.004, -.004,  .024,  .008,
     . .001,  .001,  .026,  .011,
     . .001,  .001,  .025,  .012,
     .0.000, 0.000,  .024,  .011,
     .-.002, -.002,  .020,  .008/
*
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```
*      AXIAL FORCE DUE TO POWER EFFECTS, ALP=-4,24 IN 4 DEG INCR, VEO=
*      .05,.70 IN .05 INCR FOR THETAJ=65 DEG
*
       DATA CA55T/
      .0., -.02, -.035, -.055, -.079, -.06, .04, -.312,
      .-.007, -.022, -.036, -.053, -.076, -.059, 0.062, -.0162,
      .-.012, -.022, -.035, -.049, -.068, -.054, .046, -.02,
      .-.0143, -.021, -.033, -.044, -.061, -.048, .0325, -.022,
      .-.0143, -.019, -.03, -.038, -.052, -.042, .021, -.023,
      .-.012, -.016, -.0252, -.032, -.043, -.0355, .012, -.023,
      .-.0373, -.012, -.020, -.025, -.034, -.028, .006, -.022,
      .-.0037, -.007, -.0135, -.018, -.024, -.021, .002, -.02,
      .2*0.0, -.002, -.005, -.0065, -.0065, 0., -.014,
      .7*0.0, -.005,
      .8*0.0,
      .8*0.0/
*
*      BASELINE SIDE FORCE DUE TO BETA (LOW BETAS), 2=-4,24 IN 4 DEG
*      INCR AND DFLAP=0.,25. DEG
*
       DATA CYBAST/
      . -0.01873, -0.01604, -0.01833, -0.01888, -0.01973, -0.01657,
      . -0.01801, -0.01506,
      . -0.01670, -0.01880, -0.02040, -0.02140, -0.02090, -0.01700,
      . -0.01520, -0.01440/
*
*      BASELINE SIDE FORCE DUE TO BETA (HI BETAS) 2=-4,24 IN 4 DEG INCR
*
       DATA DCYHIT/
      . 0.00979, 0.00965, 0.00980, 0.01050, 0.01220, 0.01280,
      . 0.01290, 0.01300/
*
*      POWER EFFECTS ON CY0, VEQ=0.,4 IN .05 INCR AND ALP=-4.,24.
*
       DATA CYPOWT/
      . 0.0030, -0.0040, -0.0070, -0.0110, -0.0123, -0.0069, -0.0033,
      .-0.0015, -0.0005,
      . 0.0030, -0.0045, -0.0078, -0.0100, -0.0104, -0.0070, -0.0035,
      .-0.0020, -0.0012,
      . 0.0000, -0.0036, -0.0066, -0.0085, -0.0080, -0.0050, -0.0028,
      .-0.0020, -0.0015,
      . 0.0000, -0.0037, -0.0057, -0.0075, -0.0075, -0.0045, -0.0022,
      .-0.0010, 0.0000,
      . 0.0000, -0.0037, -0.0057, -0.0072, -0.0070, -0.0050, -0.0025,
      .-0.0006, 0.0005,
      . 0.0000, -0.0049, -0.0075, -0.0094, -0.0093, -0.0074, -0.0044,
      .-0.0017, 0.0003,
      . 0.0000, -0.0034, -0.0065, -0.0085, -0.0065, -0.0056, -0.0022,
      . 0.0000, 0.0003,
      . 0.0000, -0.0029, -0.0058, -0.0082, -0.0085, -0.0064, -0.0030,
      .-0.0003, -0.0002/
*
*      SIDE FORCE DUE TO AILERON DEFL., ALP=-4,24 IN 4 DEG INCR AND DA=
*      -30,30 IN 5 DEG INCR
*
       DATA CYAILT/
      . .0370, .0345, .0333, .0233, .0142, .0065, -.0005, -.0127,
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     . .0440, .0418, .0402, .0314, .0235, .0173,  .0115,  .0044,         YAERO
     . .0477, .0460, .0453, .0362, .0297, .0243,  .0195,  .0140,         YAERO
     . .0493, .0465, .0457, .0380, .0323, .0275,  .0232,  .0165,         YAERO
     . .0400, .0380, .0370, .0300, .0270, .0230,  .0200,  .0130,         YAERO
     . .0200, .0190, .0185, .0150, .0135, .0115,  .0100,  .0065,         YAERO
     . 8*0.0,                                                            YAERO
     .-.0200, -.0190, -.0185, -.0150, -.0135, -.0115, -.0100, -.0065,    YAERO
     .-.0320, -.0297, -.0292, -.0270, -.0260, -.0260, -.0175, -.0120,    YAERO
     .-.0330, -.0307, -.0302, -.0321, -.0337, -.0235, -.0215, -.0153,    YAERO
     .-.0260, -.0235, -.0230, -.0305, -.0320, -.0210, -.0185, -.0122,    YAERO
     .-.0025,  .0090,  .0175,  .0015, -.0080, -.0060,  .0035,  .0030,    YAERO
     . .0475,  .0926,  .1492,  .0717,  .0415,  .0297,  .0407,  .0247/   YAERO
*                                                                        YAERO
*      BASELINE R.M. DUE TO BETA ,ALP=-4,24 IN 4 DEG INCR AND FLAP=0,25  YAERO
*      AND 61.7 DEG                                                      YAERO
*                                                                        YAERO
       DATA CLLBAST/                                                     YAERO
     . .00021, -.00034, -.00101, -.00133, -.00182, -.00226, -.00136,     YAERO
     .-.00130,  .00046, -.00035, -.00129, -.00176, -.00235, -.00300,     YAERO
     .-.00190, -.00170, -.00083, -.00140, -.00196, -.00245, -.00321,     YAERO
     .-.00507, -.00410, -.00181/                                         YAERO
*                                                                        YAERO
*      POWER EFFECTS ON CLLB, VEQ=0,.4 IN .05 INCR AND ALP=-4,24         YAERO
*                                                                        YAERO
       DATA CLLPOWT/                                                     YAERO
     . 0.00000, -0.00030, -0.00085, -0.00133, -0.00157, -0.00116,        YAERO
     .-0.00052, -0.00003,  0.00014,                                      YAERO
     . 0.00000, -0.00052, -0.00112, -0.00135, -0.00138, -0.00114,        YAERO
     .-0.00055, -0.00009,  0.00000,                                      YAERO
     . 0.00000, -0.00039, -0.00087, -0.00112, -0.00123, -0.00106,        YAERO
     .-0.00061, -0.00021, -0.00005,                                      YAERO
     . 0.00000, -0.00045, -0.00072, -0.00087, -0.00097, -0.00097,        YAERO
     .-0.00079, -0.00053, -0.00021,                                      YAERO
     . 0.00000, -0.00046, -0.00076, -0.00047,  0.00004, -0.00084,        YAERO
     .-0.00103, -0.00068, -0.00026,                                      YAERO
     . 0.00000,  0.00033,  0.00081,  0.00127,  0.00128,  0.00045,        YAERO
     . 0.00015, -0.00002, -0.00012,                                      YAERO
     . 0.00000,  0.00017,  0.00032,  0.00054,  0.00059,  0.00008,        YAERO
     . 0.00008,  0.00036,  0.00059,                                      YAERO
     . 0.00000,  0.00006,  0.00006,  0.00004,  0.00010,  0.00010,        YAERO
     . 0.00011,  0.00005, -0.000057,                                     YAERO
*                                                                        YAERO
*      R.M. DUE TO AILERON DEFL., ALP=-4,24 IN 4 DEG INCR AND DA=-30,30  YAERO
*      IN 5 DEG INCR                                                     YAERO
*                                                                        YAERO
       DATA CLLAILT/                                                     YAERO
     .4*-.0440, -.0400, -.0355, -.0280, -.0207,                          YAERO
     .4*-.0395, -.0350, -.0310, -.0245, -.0185,                          YAERO
     .4*-.0320, -.0280, -.0250, -.0200, -.0150,                          YAERO
     .4*-.0240, -.0210, -.0187, -.0150, -.0112,                          YAERO
     .4*-.0160, -.0140, -.0125, -.0100, -.0075,                          YAERO
     .4*-.0080, -.0070, -.0062, -.0050, -.0037,                          YAERO
     .8*0.0,                                                             YAERO
     .5*.0070, .0062, .0050, .0037,                                      YAERO
     .5*.0140, .0125, .0100, .0075,                                      YAERO
     ..0188, .0190, .0195, .0200, .0200, .0182, .0137, .0098,            YAERO
     ..0220, .0230, .0235, .0239, .0239, .0210, .0155, .0103,            YAERO
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     .,0232, .0240, .0248, .0255, .0250, .0210, .0148, .0085,
     .,0195, .0215, .0230, .0235, .0210, .0167, .0095, .0035/
*
*    CLLR /RADIAN ,ALP=-4,24 IN 4 DEG INCR
*
     DATA CLLRT/
    . 0.0373, 0.056, 0.0709, 0.0838, 0.0791, 0.0776, 0.0842, 0.1012/
*
*    CLLP /RADIAN ,ALP=-4,24 IN 4 DEG INCR
*
     DATA CLLPT/
    . -.363, -.37, -.374, -.369, -.354, -.325, -.289, -.244/
*
*    BASELINE Y.M. DUE TO BETA, ALPHA=-4,24 IN 4 DEG INCR AND FLAP=0.25
*    AND 61.7 DEG
*
     DATA CLNBAST/
    . .00304, .00314, .00300, .00304, .00297, .00104, -.00036, -.00148,
    . .0050, .0050, .0050, .0050, .00431, .00222, .00016, -.0012,
    . .00392, .00385, .00372, .00359, .00322, .00226, .00042, -.00037/
*
*    POWER EFFECTS ON CLNB, VEO=0,.4 IN .05 INCR AND ALP=-4,24
*
     DATA CLNPOWT/
    .0.00000,  0.00036,  0.00076,  0.00134,  0.00176,  0.00177,
    .0.00142,  0.00097,  0.00051,
    .0.00000,  0.00007,  0.00018,  0.00048,  0.00090,  0.00125,
    .0.00105,  0.00055,  0.00003,
    .0.00000, -0.00022, -0.00025, -0.00008,  0.00042,  0.00083,
    .0.00088,  0.00049,  0.00000,
    .0.00000, -0.00006, -0.00005,  0.00005,  0.00049,  0.00087,
    .0.00090,  0.00072,  0.00050,
    .0.00000, -0.00002, -0.00001,  0.00035,  0.00078,  0.00061,
    .0.00039,  0.00021,  0.00001,
    .0.00000,  0.00036,  0.00067,  0.00101,  0.00109,  0.00059,
    .-.00006, -0.00047, -0.00061,
    .0.00000,  0.00012,  0.00019,  0.00041,  0.00054,  0.00026,
    .-.00005, -0.00017, -0.00016,
    .0.00000, -0.00345, -0.00076, -0.00105, -0.00120, -0.00096,
    .-.00061, -0.00048, -0.00050/
*
*    BASELINE CLNB DUE TO HI BETAS
*    ALP=-4,24 IN 4 DEG INCR
*
     DATA DCLNHIT/
    . -.00102, -.00170, -.00234, -.00294, -.00349, -.00398,
    . -.00438, -.00473/
*
*    Y.M. DUE TO AILERON DEFL., ALP=-4,24 IN 4 DEG INCR AND DA=-30,30
*    IN 5 DEG INCR
*
     DATA(CLNAILT(I),I=1,72)/
    .-0.0114, -0.0136, -0.0148, -0.0153, -0.0155, -0.0136, -0.0113,
    .-0.0095,
    .-0.0103, -0.0123, -0.0136, -0.0141, -0.0143, -0.0123, -0.0110,
    .-0.0095,
    .-0.0094, -0.0100, -0.0112, -0.0116, -0.0120, -0.0100, -0.0094,
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     .-0.0099,
     .-0.0064, -0.0075, -0.0084, -0.0087, -0.0090, -0.0075, -0.0075,
     .-0.0073,
     .-0.0042, -0.0050, -0.0056, -0.0058, -0.0060, -0.0050, -0.0050,
     .-0.0050,
     .-0.0021, -0.0025, -0.0028, -0.0029, -0.0030, -0.0025, -0.0025,
     .-0.0025,
     .8*0.,
     . 0.0021,  0.0025,  0.0028,  0.0029,  0.0030,  0.0025,  0.0025,
     . 0.0025,
     . 0.0034,  0.0040,  0.0047,  0.0051,  0.0054,  0.0042,  0.0040,
     . 0.0039/
      DATA(CLNAILT(I),I=73,104)/
     . 0.0036,  0.0042,  0.0052,  0.0061,  0.0067,  0.0045,  0.0034,
     . 0.0034,
     . 0.0036,  0.0035,  0.0034,  0.0054,  0.0065,  0.0035,  0.0010,
     . 0.0015,
     . 0.0036,  0.0025,  0.0013,  0.0027,  0.0035,  0.0019, -0.0030,
     .-0.0012,
     . 0.0036,  0.0012, -0.0018, -0.0022, -0.0012, -0.0002, -0.0082,
     .-0.0046/
*
*     CLNR /RADIAN, ALP=-4,24 IN 4 DEG INCR
*
      DATA CLNRT/
     .-.309, -.302, -.297, -.292, -.252, -.234, -.229, -.227/
*
*     CLNP /RADIAN, ALP=-4,24 IN 4 DEG INCR
*
      DATA CLNPT/
     . 0.055, 0.015, -0.025, -0.065, -0.105, -0.135, -0.155, -0.165/
*
*     GROUND EFFECTS ON LONGITUDINAL AERO
*
*     (NORMAL FORCE/THRUST) INCREMENT IN GROUND EFFECT (VTOL MODE)
*        THALP=-4,16 IN 2 DEG INCR AND H8=0,13 IN 1 FT INCR, 14,64 IN
*        10 FT INCR
*
      DATA(CNGE8IT(I),I=1,99)/
     . .0040,  .0126,  .0212,  .0253,  .0294,  .0454,  .0697,  .0592,
     . .0334,  .0217,  .0100,
     . .0060,  .0149,  .0238,  .0280,  .0322,  .0505,  .0765,  .0643,
     . .0365,  .0239,  .0112,
     . .0073,  .0145,  .0257,  .0300,  .0342,  .0537,  .0813,  .0583,
     . .0388,  .0249,  .0110,
     . .0070,  .0148,  .0225,  .0290,  .0355,  .0552,  .0835,  .0707,
     . .0402,  .0212,  .0022,
     . .0042,  .0096,  .0150,  .0253,  .0355,  .0552,  .0843,  .0716,
     . .0402,  .0173, -.0057,
     .-.0035,  .0019,  .0072,  .0199,  .0325,  .0513,  .0822,  .0710,
     . .0375,  .0146, -.0094,
     .-.0100, -.0055, -.0010,  .0120,  .0250,  .0495,  .0735,  .0672,
     . .0315,  .0108, -.0100,
     .-.0132, -.0106, -.0080,  .0028,  .0135,  .0283,  .0400,  .0400,
     . .0215,  .0054, -.0108,
     .-.0141, -.0134, -.0127, -.0116, -.0105, -.0068, -.0030, -.0039,
     . .0045, -.0035, -.0115/
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      DATA(CNGEBLT(I),I=100,198)/
     .-.0144, -.0148, -.0152, -.0143, -.0134, -.0130, -.0125, -.0115,
     .-.0071, -.0097, -.0120,
     .-.0144, -.0153, -.0162, -.0154, -.0145, -.0146, -.0147, -.0130,
     .-.0100, -.0113, -.0125,
     .-.0144, -.0155, -.0165, -.0157, -.0148, -.0152, -.0155, -.0140,
     .-.0113, -.0120, -.0126,
     .-.0144, -.0155, -.0165, -.0158, -.0150, -.0154, -.0157, -.0138,
     .-.0117, -.0122, -.0127,
     .-.0144, -.0155, -.0165, -.0159, -.0150, -.0153, -.0156, -.0137,
     .-.0117, -.0122, -.0127,
     .-.0142, -.0152, -.0162, -.0155, -.0148, -.0152, -.0155, -.0137,
     .-.0119, -.0123, -.0127,
     .-.0127, -.0134, -.0140, -.0135, -.0130, -.0133, -.0135, -.0123,
     .-.0108, -.0113, -.0118,
     .-.0085, -.0091, -.0097, -.0194, -.0090, -.0091, -.0092, -.0080,
     .-.0070, -.0074, -.0077,
     .-.0033, -.0040, -.0047, -.0042, -.0037, -.0040, -.0042, -.0030,
     .-.0020, -.0023, -.0025/
      DATA(CNGEBLT(I),I=199,220)/
     .-.0005, -.0011, -.0017, -.0013, -.0004, -.0011, -.0013, -.0002,
     .3*0.,
     .11*0./
*
*     (AXIAL FORCE/THRUST) INCREMENT IN GROUND EFFECT (VTOL MODE)
*     THALP=-4,16 IN 4 DEG INCP AND H*=0,12 IN 1 FT INCP,16,64 IN 4 FT
*     INCR
*
      DATA(CAGEBLT(I),I=1,108)/
     . .0140,   .0146,   .0189,   .0295,   .0335,   .0325,
     . .0127,   .0149,   .0207,   .0323,   .0360,   .0350,
     . .0108,   .0123,   .0190,   .0315,   .0350,   .0357,
     . .0084,   .0082,   .0130,   .0267,   .0295,   .0327,
     . .0074,   .0060,   .0100,   .0212,   .0257,   .0285,
     . .0072,   .0050,   .0084,   .0165,   .0228,   .0248,
     . .0075,   .0044,   .0075,   .0143,   .0263,   .0215,
     . .0082,   .0042,   .0070,   .0127,   .0183,   .0189,
     . .0088,   .0044,   .0070,   .0117,   .0168,   .0170,
     . .0093,   .0049,   .0071,   .0110,   .0150,   .0152,
     . .0097,   .0054,   .0073,   .0105,   .0140,   .0138,
     . .0102,   .0062,   .0075,   .0103,   .0130,   .0130,
     . .0107,   .0070,   .0075,   .0100,   .0124,   .0124,
     . .0120,   .0090,   .0081,   .0100,   .0120,   .0120,
     . .0130,   .0095,   .0093,   .0102,   .0126,   .0135,
     . .0135,   .0094,   .0098,   .0107,   .0140,   .0140,
     . .0135,   .0087,   .0097,   .0110,   .0138,   .0143,
     . .0128,   .0091,   .0092,   .0105,   .0134,   .0140/
      DATA(CAGEBLT(I),I=109,156)/
     . .0118,   .0074,   .0084,   .0098,   .0123,   .0133,
     . .0105,   .0065,   .0075,   .0082,   .0110,   .0122,
     . .0085,   .0055,   .0065,   .0073,   .0092,   .0103,
     . .0063,   .0040,   .0050,   .0055,   .0062,   .0075,
     . .0042,   .0025,   .0032,   .0036,   .0045,   .0052,
     . .0025,   .0012,   .0019,   .0020,   .0030,   .0033,
     . .0013,   .0005,   .0007,   .0010,   .0015,   .0015,
     .6*0./
*
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*     (PITCHING MOMENT/THRUST*EQUIVALENT NOZZLE EXIT DIAMETER) INCREMENTYAERO   913
*     IN GROUND EFFECT (VTOL MODE), THALP=-4,16 IN 4 DEG INCR, HT=0,14   YAERO   914
*     IN 1FT INCR AND 24,64 IN 10 FT INCR                                YAERO   915
*                                                                        YAERO   916
      DATA(CMGEH1T(I),I=1,108)/                                          YAERO   917
     * .0590,  .0530,  .0720,  .0905,  .1435,  .1510,                    YAERO   918
     * .0159,  .0240,  .0325,  .0750,  .1245,  .1285,                    YAERO   919
     * 0.    ,  .0155,  .0120,  .0655,  .1130,  .1140,                   YAERO   920
     *-.0135,  .0095, -.0045,  .0550,  .0972,  .0975,                    YAERO   921
     *-.0122,  .0057, -.0090,  .0450,  .0845,  .0815,                    YAERO   922
     *-.0050,  .0095, -.0068,  .0370,  .0720,  .0682,                    YAERO   923
     * .0095,  .0175, 0.    ,  .0305,  .0660,  .0558,                    YAERO   924
     * .0290,  .0260,  .0070,  .0250,  .0495,  .0455,                    YAERO   925
     * .0368,  .0315,  .0170,  .0230,  .0405,  .0378,                    YAERO   926
     * .0375,  .0350,  .0262,  .0220,  .0340,  .0318,                    YAERO   927
     * .0362,  .0360,  .0305,  .0220,  .0295,  .0265,                    YAERO   928
     * .0320,  .0345,  .0300,  .0220,  .0265,  .0228,                    YAERO   929
     * .0245,  .0315,  .0265,  .0228,  .0242,  .0210,                    YAERO   930
     * .0205,  .0292,  .0232,  .0235,  .0222,  .0200,                    YAERO   931
     * .0200,  .0295,  .0222,  .0240,  .0208,  .0205,                    YAERO   932
     * .0195,  .0170,  .0215,  .0180,  .0132,  .0180,                    YAERO   933
     * .0070,  .0062,  .0092,  .0082,  .0070,  .0100,                    YAERO   934
     * .0035,  .0035,  .0045,  .0035,  .0045,  .0055/                    YAERO   935
      DATA(CMGE81T(I),I=109,120)/                                        YAERO   936
     * .0020,  .0015,  .0020,  .0015,  .0025,  .0032,                    YAERO   937
     *6*0./                                                              YAERO   938
*                                                                        YAERO   939
*     NORMAL FORCE COEFFICIENT IN GROUND EFFECT                          YAERO   940
*     THALP=-4,12 IN 4 DEG INCR, HT=0,22 IN 2 FT INCR, VF=.10,.15,.20,   YAERO   941
*     .25                                                                YAERO   942
*                                                                        YAERO   943
      DATA(CNGE55T(I),I=1,90)/                                           YAERO   944
     * 0.    ,  .0145, -.0140,  .0050, 0.    ,                           YAERO   945
     *  .0025,  .0155, -.0029,  .0090, 0.    ,                           YAERO   946
     *  .0030,  .0160,  .0087,  .0130, 0.    ,                           YAERO   947
     *  .0020,  .0165,  .0185,  .0168, 0.    ,                           YAERO   948
     *  .0005,  .0165,  .0265,  .0200, 0.    ,                           YAERO   949
     * -.0002,  .0162,  .0325,  .0227, 0.    ,                           YAERO   950
     * -.0010,  .0150,  .0350,  .0235, 0.    ,                           YAERO   951
     * -.0007,  .0132,  .0325,  .0212, 0.    ,                           YAERO   952
     * 0.    ,  .0095,  .0230,  .0147, 0.    ,                           YAERO   953
     * 0.    ,  .0040,  .0100,  .0055, 0.    ,                           YAERO   954
     * 0.    ,  .0005,  .0012,  .0007, 0.    ,                           YAERO   955
     * 5*0.,                                                             YAERO   956
     *  .0310,  .0520,  .0545,  .0345,  .0345,                           YAERO   957
     *  .0385,  .0580,  .0605,  .0405,  .0405,                           YAERO   958
     *  .0400,  .0610,  .0630,  .0430,  .0435,                           YAERO   959
     *  .0382,  .0565,  .0585,  .0415,  .0420,                           YAERO   960
     *  .0345,  .0418,  .0503,  .0365,  .0382,                           YAERO   961
     *  .0285,  .0345,  .0390,  .0335,  .0332/                           YAERO   962
      DATA(CNGE55T(I),I=91,180)/                                         YAERO   963
     *  .0220,  .0210,  .0270,  .0238,  .0278,                           YAERO   964
     *  .0145,  .0100,  .0160,  .0170,  .0210,                           YAERO   965
     *  .0080,  .0045,  .0090,  .0105,  .0135,                           YAERO   966
     *  .0025,  .0010,  .0045,  .0050,  .0068,                           YAERO   967
     * 0.    , 0.    ,  .0005,  .0005,  .0020,                           YAERO   968
     * 5*0.,                                                             YAERO   969
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     .  .0628,  .0665,  .0760,  .0745,  .0680,                       YAERO      970
     .  .0605,  .0645,  .0733,  .0710,  .0660,                       YAERO      971
     .  .0555,  .0600,  .0680,  .0670,  .0612,                       YAERO      972
     .  .0495,  .0530,  .0610,  .0610,  .0550,                       YAERO      973
     .  .0425,  .0440,  .0515,  .0520,  .0475,                       YAERO      974
     .  .0352,  .0335,  .0410,  .0425,  .0390,                       YAERO      975
     .  .0275,  .0230,  .0300,  .0325,  .0305,                       YAERO      976
     .  .0197,  .0125,  .0190,  .0225,  .0220,                       YAERO      977
     .  .0125,  .0052,  .0093,  .0130,  .0140,                       YAERO      978
     .  .0060,  .0010,  .0030,  .0055,  .0070,                       YAERO      979
     .  .0010,  0.   ,  .0002,  .0005,  .0020,                       YAERO      980
     .  5*0./                                                        YAERO      981
      DATA(CNGE55T(I),I=191,240)/                                    YAERO      982
     .  .0290,  .0354,  .0645,  .0260,  .0382,                       YAERO      983
     .  .0185,  .0258,  .0510,  .0200,  .0312,                       YAERO      984
     .  .0030,  .0159,  .0375,  .0140,  .0240,                       YAERO      985
     . -.0028,  .0058,  .0235,  .0075,  .0165,                       YAERO      986
     . -.0123, -.0035,  .0113,  .0012,  .0095,                       YAERO      987
     . -.0210, -.0115, -.0005, -.0040,  .0035,                       YAERO      988
     . -.0260, -.0165, -.0085, -.0070, -.0010,                       YAERO      989
     . -.0252, -.0165, -.0100, -.0070, -.0020,                       YAERO      990
     . -.0200, -.0135, -.0082, -.0058, -.0020,                       YAERO      991
     . -.0120, -.0090, -.0055, -.0035, -.0010,                       YAERO      992
     . -.0040, -.0038, -.0022, -.0005, -.0002,                       YAERO      993
     .  5*0./                                                        YAERO      994
*                                                                    YAERO      995
*     AXIAL FORCE COEFFICIENT INCREMENT IN GROUND EFFECT              YAERO      996
*     THALP=-4,12 IN 4 DEG INCR, H*=0,6 IN 1 FT INCR AND 8,22 IN 2 FT YAERO      997
*     INCR, VF=1.0,1.5,2.0,2.5                                        YAERO      998
*                                                                    YAERO      999
      DATA(CAGE55T(I),I=1,90)/                                       YAERO     1000
     .  .0175,  .0265,  .0115,  .0345,  .0345,                       YAERO     1001
     .  .0190,  .0300,  .0130,  .0400,  .0415,                       YAERO     1002
     .  .0195,  .0302,  .0130,  .0445,  .0495,                       YAERO     1003
     .  .0190,  .0297,  .0133,  .0480,  .0570,                       YAERO     1004
     .  .0185,  .0285,  .0125,  .0510,  .0638,                       YAERO     1005
     .  .0180,  .0270,  .0120,  .0518,  .0690,                       YAERO     1006
     .  .0160,  .0245,  .0105,  .0500,  .0710,                       YAERO     1007
     .  .0130,  .0260,  .0080,  .0438,  .0650,                       YAERO     1008
     .  .0085,  .0140,  .0055,  .0330,  .0465,                       YAERO     1009
     .  .0040,  .0070,  .0025,  .0195,  .0235,                       YAERO     1010
     .  .0010,  .0020,  .0005,  .0055,  .0060,                       YAERO     1011
     .  5*0.,                                                        YAERO     1012
     .  .0030,  .0115,  .0350,  .0330,  .0235,                       YAERO     1013
     .  .0295,  .0460,  .0615,  .0775,  .1010,                       YAERO     1014
     .  .0412,  .0595,  .0740,  .0995,  .1200,                       YAERO     1015
     .  .0405,  .0570,  .0730,  .0950,  .1140,                       YAERO     1016
     .  .0350,  .0465,  .0585,  .0805,  .0970,                       YAERO     1017
     .  .0265,  .0365,  .0438,  .0608,  .0740/                       YAERO     1018
      DATA(CAGE55T(I),I=91,180)/                                     YAERO     1019
     .  .0168,  .0232,  .0270,  .0385,  .0475,                       YAERO     1020
     .  .0080,  .0122,  .0119,  .0180,  .0238,                       YAERO     1021
     .  .0030,  .0070,  .0045,  .0095,  .0120,                       YAERO     1022
     .  .0010,  .0035,  .0015,  .0040,  .0055,                       YAERO     1023
     .  0.   ,  .0010,  0.   ,  .0015,  .0018,                       YAERO     1024
     .  5*0.,                                                        YAERO     1025
     .  .0100,  .0370,  .0635,  .0640,  .0865,                       YAERO     1026
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      SUBROUTINE AERODAT    74/175  OPT=2                  FTN 4.8+534        82/10/22. 15.12.40        PAGE    19

     .  .0220,   .0505,   .0695,   .0875,   .1040,                                        YAERO     1027
     .  .0258,   .0535,   .0720,   .0980,   .1120,                                        YAERO     1028
     .  .0245,   .0500,   .0645,   .0910,   .1045,                                        YAERO     1029
     .  .0200,   .0418,   .0515,   .0740,   .0870,                                        YAERO     1030
     .  .0135,   .0295,   .0352,   .0520,   .0640,                                        YAERO     1031
     .  .0065,   .0148,   .0170,   .0272,   .0300,                                        YAERO     1032
     .  .0015,   .0020,   .0030,   .0055,   .0140,                                        YAERO     1033
     . 0.     , 0.     , 0.     , 0.     ,  .0005,                                        YAERO     1034
     . 5*0.,                                                                              YAERO     1035
     . 5*0.,                                                                              YAERO     1036
     . 5*0./                                                                              YAERO     1037
      DATA(CAGE55T(I),I=181,240)/                                                         YAERO     1038
     .  .0235,   .0455,   .0620,   .0855,   .0835,                                        YAERO     1039
     .  .0225,   .0445,   .0610,   .0850,   .0830,                                        YAERO     1040
     .  .0215,   .0425,   .0580,   .0825,   .0805,                                        YAERO     1041
     .  .0195,   .0380,   .0515,   .0742,   .0730,                                        YAERO     1042
     .  .0160,   .0305,   .0403,   .0592,   .0585,                                        YAERO     1043
     .  .0115,   .0210,   .0265,   .0400,   .0400,                                        YAERO     1044
     .  .0065,   .0115,   .0120,   .0195,   .0195,                                        YAERO     1045
     .  .0020,   .0025,   .0015,   .0020,   .0020,                                        YAERO     1046
     . 5*0.,                                                                              YAERO     1047
     . 5*0.,                                                                              YAERO     1048
     . 5*0.,                                                                              YAERO     1049
     . 5*0./                                                                              YAERO     1050
C****                                                                                     YAERO     1051
C     PITCHING MOMENT COEFFICIENT INCREMENT IN GROUND EFFECT                              YAERO     1052
C     THALP=-4,12 IN 4 DEG INCR, HT=0,22 IN 2 FT INCR,VF=.10,.15,.20,.25YAERO     1053
C                                                                                         YAERO     1054
      DATA(CMGE55T(I),I=1,90)/                                                            YAERO     1055
     . -.043, -.048, -.115, -.377, -.470,                                                 YAERO     1056
     . -.053, -.055, -.110, -.335, -.443,                                                 YAERO     1057
     . -.054, -.059, -.104, -.290, -.403,                                                 YAERO     1058
     . -.051, -.057, -.095, -.245, -.354,                                                 YAERO     1059
     . -.041, -.049, -.081, -.198, -.295,                                                 YAERO     1060
     . -.022, -.039, -.066, -.150, -.226,                                                 YAERO     1061
     . -.014, -.025, -.049, -.101, -.154,                                                 YAERO     1062
     . -.004, -.014, -.032, -.058, -.091,                                                 YAERO     1063
     . 0.   , -.004, -.016, -.027, -.043,                                                 YAERO     1064
     . 0.   , 0.   , -.005, -.011, -.018,                                                 YAERO     1065
     . 0.   , 0.   , 0.   , -.004, -.006,                                                 YAERO     1066
     . 5*0.,                                                                              YAERO     1067
     . -.036, -.088, -.143, -.229, -.402,                                                 YAERO     1068
     . -.046, -.089, -.145, -.223, -.393,                                                 YAERO     1069
     . -.050, -.084, -.136, -.211, -.375,                                                 YAERO     1070
     . -.042, -.070, -.119, -.185, -.327,                                                 YAERO     1071
     . -.026, -.053, -.092, -.145, -.249,                                                 YAERO     1072
     . -.008, -.032, -.060, -.097, -.158/                                                 YAERO     1073
      DATA(CMGE55T(I),I=91,180)/                                                          YAERO     1074
     . 0.   , -.012, -.025, -.046, -.068,                                                 YAERO     1075
     . 0.   , 0.   , -.006, -.014, -.024,                                                 YAERO     1076
     . 0.   , 0.   , 0.   , -.004, -.011,                                                 YAERO     1077
     . 4*0. , -.004,                                                                      YAERO     1078
     . 5*0.,                                                                              YAERO     1079
     . 5*0.,                                                                              YAERO     1080
     . -.048, -.077, -.154, -.227, -.326,                                                 YAERO     1081
     . -.044, -.071, -.132, -.213, -.311,                                                 YAERO     1082
     . -.018, -.061, -.108, -.188, -.286,                                                 YAERO     1083
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     . -.030, -.050, -.080, -.154, -.239,                              YAERO  1084
     . -.022, -.030, -.062, -.114, -.175,                              YAERO  1085
     . -.012, -.021, -.037, -.073, -.105,                              YAERO  1086
     . -.003, -.007, -.015, -.031, -.046,                              YAERO  1087
     . 0.   , 0.   , -.002, -.007, -.016,                              YAERO  1088
     . 0.   , 0.   , 0.   , -.001, -.006,                              YAERO  1089
     . 4*0. , -.001,                                                   YAERO  1090
     . 5*0.,                                                           YAERO  1091
     . 5*0./                                                           YAERO  1092
      DATA(CMGE55T(I),I=181,240)/                                      YAERO  1093
     . -.040, -.061, -.119, -.190, -.275,                              YAERO  1094
     . -.034, -.055, -.104, -.165, -.240,                              YAERO  1095
     . -.026, -.044, -.084, -.136, -.200,                              YAERO  1096
     . -.019, -.032, -.061, -.104, -.156,                              YAERO  1097
     . -.008, -.019, -.038, -.071, -.110,                              YAERO  1098
     . -.001, -.008, -.019, -.040, -.065,                              YAERO  1099
     .  .004, -.001, -.003, -.016, -.027,                              YAERO  1100
     .  .005,  .002, 0.   , -.004, -.007,                              YAERO  1101
     .  .002, 0.   , 0.   , 0.   , -.001,                              YAERO  1102
     . 5*0.,                                                           YAERO  1103
     . 5*0.,                                                           YAERO  1104
     . 5*0./                                                           YAERO  1105
*                                                                      YAERO  1106
*     50 DEG NOZZLE ANGLE INCREMENT TO DCN (IN G.F.), THALP=-4,12 IN 4 YAERO  1107
*     DEG INCR,HT=0,22 IN 2 FT INCR                                    YAERO  1108
*                                                                      YAERO  1109
      DATA DCN50T/                                                     YAERO  1110
     . -.0256, -.0167, -.0118, -.0070, -.0303,                         YAERO  1111
     . -.0274, -.0186, -.0136, -.0090, -.0321,                         YAERO  1112
     . -.0290, -.0203, -.0152, -.0110, -.0336,                         YAERO  1113
     . -.0300, -.0217, -.0166, -.0127, -.0349,                         YAERO  1114
     . -.0310, -.0228, -.0180, -.0144, -.0360,                         YAERO  1115
     . -.0313, -.0235, -.0188, -.0156, -.0364,                         YAERO  1116
     . -.0306, -.0230, -.0186, -.0160, -.0355,                         YAERO  1117
     . -.0275, -.0205, -.0166, -.0147, -.0320,                         YAERO  1118
     . -.0215, -.0160, -.0130, -.0117, -.0248,                         YAERO  1119
     . -.0135, -.0104, -.0085, -.0378, -.0153,                         YAERO  1120
     . -.0050, -.0042, -.0036, -.0034, -.0053,                         YAERO  1121
     . 5*0./                                                           YAERO  1122
*                                                                      YAERO  1123
*     60 DEG NOZZLE ANGLE INCREMENT TO DCN (IN G.F.), THALP=-4,12 IN 4 YAERO  1124
*     DEG INCR, HT=0,22 IN 2 FT INCR                                   YAERO  1125
*                                                                      YAERO  1126
      DATA DCN60T/                                                     YAERO  1127
     .  .0190,  .0265,  .0225,  .0530,  .0725,                         YAERO  1128
     .  .0190,  .0265,  .0225,  .0530,  .0725,                         YAERO  1129
     .  .0187,  .0265,  .0225,  .0530,  .0723,                         YAERO  1130
     .  .0135,  .0233,  .0185,  .0470,  .0653,                         YAERO  1131
     .  .0050,  .0154,  .0100,  .0328,  .0460,                         YAERO  1132
     . -.0057,  .0050, -.0005,  .0123,  .0180,                         YAERO  1133
     . -.0155, -.0069, -.0116, -.0090, -.0054,                         YAERO  1134
     . -.0180, -.0114, -.0147, -.0133, -.0110,                         YAERO  1135
     . -.0150, -.0100, -.0126, -.0115, -.0100,                         YAERO  1136
     . -.0103, -.0072, -.0087, -.0090, -.0070,                         YAERO  1137
     . -.0044, -.0032, -.0038, -.0034, -.0030,                         YAERO  1138
     . 5*0./                                                           YAERO  1139
*                                                                      YAERO  1140
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*
*       50 DEG NOZZLE ANGLE INCREMENT TO DCA (IN G.E.), THALP=-4,12 IN 4
*       DEG INCR, HT=0,22 IN 2 FT INCR
*
        DATA DCA50T/
     .   .0065,  .0054,  .0047,  .0038,  .0030,
     .   .0036,  .0027,  .0020,  .0012, 0.    ,
     .   .0010,  .0002, -.0006, -.0014, -.0024,
     .  -.0016, -.0024, -.0032, -.0042, -.0050,
     .  -.0040, -.0048, -.0056, -.0066, -.0075,
     .  -.0050, -.0068, -.0076, -.0087, -.0095,
     .  -.0070, -.0079, -.0088, -.0098, -.0105,
     .  -.0065, -.0075, -.0084, -.0093, -.0100,
     .  -.0045, -.0054, -.0062, -.0072, -.0077,
     .  -.0019, -.0025, -.0033, -.0041, -.0047,
     .  -.0002, -.0005, -.0010, -.0015, -.0018,
     .  5*0./
*
*       60 DEG NOZZLE ANGLE INCREMENT TO DCA (IN G.F.), THALP=-4,12 IN 4
*       DEG INCR, HT=0,22 IN 2 FT INCR
*
        DATA DCA60T/
     .  -.0037, -.0098, -.0065, -.0115, -.0155,
     .  -.0096, -.0152, -.0123, -.0170, -.0202,
     .  -.0132, -.0187, -.0160, -.0205, -.0232,
     .  -.0131, -.0186, -.0158, -.0206, -.0234,
     .  -.0114, -.0169, -.0140, -.0190, -.0222,
     .  -.0087, -.0142, -.0114, -.0163, -.0205,
     .  -.0062, -.0110, -.0082, -.0132, -.0182,
     .  -.0036, -.0076, -.0052, -.0094, -.0142,
     .  -.0016, -.0044, -.0028, -.0037, -.0092,
     .  -.0002, -.0017, -.0009, -.0024, -.0045,
     .  0.    , 0.    , 0.    , -.0002, -.0010,
     .  5*0./
*
*       PITCHING MOMENT COEFFICIENT INCREMENT IN GROUND EFFECT
*       THALP=-4,12 IN 4 DEG INCR,HT=0,22 IN 2 FT INCR,VE=.15,.20
*
        DATA(DCM10T(I),I=1,60)/
     .   .020, -.010, -.090, -.235, -.396,
     .   .023,  .013, -.025, -.100, -.213,
     .   .013,  .010, -.006, -.038, -.145,
     .   .010,  .004, 0.000, -.016, -.090,
     .   .005, 0.000, 0.000, -.005, -.056,
     .4*0.0, -.034,
     .4*0.0, -.019,
     .4*0.0, -.013,
     .4*0.0, -.004,
     .5*0.0,
     .5*0.0,
     .5*0.0/
        DATA(DCM10T(I),I=61,120)/
     .   .018, -.010, -.075, -.196, -.330,
     .   .022,  .005, -.022, -.080, -.178,
     .   .019,  .007, -.005, -.035, -.082,
     .   .012,  .002, 0.000, -.018, -.047,
     .   .005, 0.000, 0.000, -.008, -.030,
     .4*0.0, -.017,
```

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     .4*0.0, -.010,
     .4*0.0, -.005,
     .4*0.0, -.002,
     .5*0.0,
     .5*0.0,
     .5*0.0/
*
*     50 DEG NOZZLE ANGLE INCREMENT TO DCM (IN G.E.),THALP=-4,12 IN 4
*     DEG INCR, HT=0,22 IN 2 FT INCR
*
      DATA DCM50T/
     . -.0025, -.0025, -.0012,  .0015,  .0040,
     . -.0025, -.0025, -.0012,  .0015,  .0040,
     . -.0025, -.0025, -.0012,  .0015,  .0040,
     . -.0025, -.0025, -.0012,  .0015,  .0040,
     . -.0025, -.0025, -.0012,  .0015,  .0040,
     . -.0025, -.0025, -.0012,  .0015,  .0040,
     . -.0025, -.0025, -.0014,  .0015,  .0040,
     . -.0025, -.0025, -.0014,  .0015,  .0040,
     . -.0020, -.0020, -.0010,  .0015,  .0036,
     . -.0014, -.0014, -.0005,  .0010,  .0026,
     . -.0005, -.0005, 0.     ,  .0005,  .0008,
     . 5*0./
*
*     60 DEG NOZZLE ANGLE INCREMENT TO DCM (IN G.E.), THALP=-4,12 IN 4
*     DEG INCR, HT=0,22 IN 2 FT INCR
*
      DATA DCM60T/
     . -.0045, -.0060, -.0052, -.0025, -.0002,
     . -.0045, -.0060, -.0052, -.0025, -.0002,
     . -.0045, -.0060, -.0053, -.0025, -.0002,
     . -.0045, -.0060, -.0054, -.0025, -.0002,
     . -.0045, -.0060, -.0055, -.0025, -.0002,
     . -.0045, -.0060, -.0055, -.0025, -.0002,
     . -.0045, -.0062, -.0055, -.0025, -.0002,
     . -.0045, -.0060, -.0053, -.0025, -.0002,
     . -.0035, -.0048, -.0040, -.0020, 0.     ,
     . -.0020, -.0030, -.0025, -.0012, 0.     ,
     . -.0005, -.0010, -.0010, -.0005, 0.     ,
     . 5*0./
*
*     GROUND EFFECT ON LONGITUDINAL CONTROL POWER, ALP=-4,24 IN 4 DEG
*     INCR
*
      DATA RKOT/
     . 1.52, 1.76, 1.76, 1.06, 0.7, 0.5, 0.4, 0.36/
*
*     CORRECTION TO DEN POWER, THETAJ=0,100 IN 20 DEG INCR,ALP=-4,24 IN
*     4 DEG INCR
*
      DATA DCNPOWT/
     . -.0226, -.0420, -.0520, -.0593, -.0648, -.0694,
     . -.0208, -.0400, -.0503, -.0573, -.0628, -.0677,
     . -.0195, -.0387, -.0484, -.0557, -.0615, -.0666,
     . -.0179, -.0376, -.0473, -.0548, -.0606, -.0655,
     . -.0168, -.0376, -.0473, -.0548, -.0608, -.0659,
     . -.0144, -.0358, -.0461, -.0535, -.0597, -.0646,
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     . -.0006, -.0284, -.0349, -.0469, -.0531, -.0586,              YAERO   1255
     . -.0018, -.0208, -.0309, -.0349, -.0451, -.0504/              YAERO   1256
*                                                                   YAERO   1257
*                 ******************************                    YAERO   1258
*                 *  SIDE FORCES - LOW SPEED  *                     YAERO   1259
*                 ******************************                    YAERO   1260
                                                                    YAERO   1261
                                                                    YAERO   1262
*                                                                   YAERO   1263
*   (SF/T)/BETA  - OUT OF GROUND EFFECTS (ALT = 70) AS A FUNCTION OF YAERO  1264
*      THALPHA -  -4 TO 24, 2 DEGREE INCREMENTS                     YAERO   1265
*      NOZZLES  -  0(1), 60(2), 81(3)                               YAERO   1266
*      VFLE     -  0.0(A), .025(B), .05(C), .096(D), .247(E)        YAERO   1267
*                                                                   YAERO   1268
      DATA(DSFTU(I),I=1,45) /                                       YAERO   1269
     A 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1270
     1 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1271
     1 0.0    , 0.0    , 0.0    ,                                   YAERO   1272
     A 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1273
     2 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1274
     2 0.0    , 0.0    , 0.0    ,                                   YAERO   1275
     A 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1276
     3 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1277
     3 0.0    , 0.0    , 0.0    /                                   YAERO   1278
      DATA(DSFTU(I),I=46,90) /                                      YAERO   1279
     B 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1280
     1 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1281
     1 0.0    , 0.0    , 0.0    ,                                   YAERO   1282
     B 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1283
     2 0.0    , 0.0    , 0.0    , 0.0    , 0.0    , 0.0    ,        YAERO   1284
     2 0.0    , 0.0    , 0.0    ,                                   YAERO   1285
     B -.000180, -.000184, -.000190, -.000195, -.000200, -.000203,  YAERO   1286
     3 -.000208, -.000210, -.000217, -.000220, -.000225, -.000230,  YAERO   1287
     3 -.000234, -.000240, -.000242 /                               YAERO   1288
      DATA(DSFTU(I),I=91,135) /                                     YAERO   1289
     C -.001630, -.001575, -.001520, -.001460, -.001407, -.001350,  YAERO   1290
     1 -.001290, -.001225, -.001150, -.001080, -.001000, -.000915,  YAERO   1291
     1 -.000810, -.000690, -.000550,                                YAERO   1292
     C -.001005, -.000990, -.000980, -.000965, -.000950, -.000940,  YAERO   1293
     2 -.000927, -.000915, -.000900, -.000890, -.000878, -.000865,  YAERO   1294
     2 -.000842, -.000840, -.000827,                                YAERO   1295
     C -.000785, -.000785, -.000785, -.000787, -.000790, -.000792,  YAERO   1296
     3 -.000798, -.000802, -.000810, -.000822, -.000837, -.000852,  YAERO   1297
     3 -.000870, -.000898, -.000922 /                               YAERO   1298
      DATA(DSFTU(I),I=136,180) /                                    YAERO   1299
     D -.004150, -.004120, -.004080, -.004030, -.003980, -.003900,  YAERO   1300
     1 -.003820, -.003720, -.003600, -.003460, -.003300, -.003120,  YAERO   1301
     1 -.002900, -.002600, -.002250,                                YAERO   1302
     D -.003570, -.003600, -.003600, -.003630, -.003650, -.003650,  YAERO   1303
     2 -.003650, -.003650, -.003630, -.003620, -.003600, -.003550,  YAERO   1304
     2 -.003500, -.003430, -.003350,                                YAERO   1305
     D -.003420, -.003450, -.003480, -.003500, -.003550, -.003570,  YAERO   1306
     3 -.003590, -.003610, -.003630, -.003650, -.003680, -.003700,  YAERO   1307
     3 -.003720, -.003740, -.003750 /                               YAERO   1308
      DATA(DSFTU(I),I=181,225) /                                    YAERO   1309
     E -.01780 , -.01910 , -.01830 , -.01844 , -.01650 , -.01850 ,  YAERO   1310
     1 -.01840 , -.01825 , -.01785 , -.01730 , -.01650 , -.01545 ,  YAERO   1311
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      1 -.01400 , -.01200 , -.00940 ,                                  YAERO    1312
      E -.01970 , -.02032 , -.02090 , -.02150 , -.02200 , -.02240 ,    YAERO    1313
      2 -.02270 , -.02296 , -.02310 , -.02315 , -.02307 , -.02280 ,    YAERO    1314
      2 -.02232 , -.02162 , -.02060 ,                                  YAERO    1315
      F -.02040 , -.02115 , -.02190 , -.02255 , -.02310 , -.02358 ,    YAERO    1316
      3 -.02410 , -.02455 , -.02488 , -.02510 , -.02525 , -.02530 ,    YAERO    1317
      3 -.02518 , -.02490 , -.02425  /                                 YAERO    1318
*                                                                      YAERO    1319
*                 *********************************                    YAERO    1320
*                 *  ROLLING MOMENT - LOW SPEED  *                    YAERO    1321
*                 *********************************                    YAERO    1322
                                                                       YAERO    1323
                                                                       YAERO    1324
*                                                                      YAERO    1325
* ((RM/TDE)/BETA) AT NOZZLES = 0(A) AND 60(B) AS A FUNCTION OF         YAERO    1326
*   ALPHA    = -4 TO 24                                                YAERO    1327
*   VELOCITY -  0.0(1), .05(2), .096(3), .247(4)                       YAERO    1328
*                                                                      YAERO    1329
      DATA(RMBE00U(I),I=1,60)/                                         YAERO    1330
     A  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, YAERO    1331
     1  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, YAERO    1332
     1  +.00000,                                                       YAERO    1333
     A  -.00240, -.00262, -.00280, -.00300, -.00320, -.00335, -.00350, YAERO    1334
     2  -.00365, -.00380, -.00390, -.00400, -.00405, -.00410, -.00412, YAERO    1335
     2  -.00415,                                                       YAERO    1336
     A  -.00140, -.00210, -.00280, -.00345, -.00400, -.00455, -.00495, YAERO    1337
     3  -.00530, -.00560, -.00590, -.00615, -.00625, -.00642, -.00655, YAERO    1338
     3  -.00665,                                                       YAERO    1339
     A  +.00080, -.00095, -.00265, -.00440, -.00610, -.00790, -.00970, YAERO    1340
     4  -.01150, -.01330, -.01550, -.01760, -.01985, -.02220, -.02455, YAERO    1341
     4  -.02720/                                                       YAERO    1342
      DATA(RMBF60U(I),I=1,60)/                                         YAERO    1343
     B  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, YAERO    1344
     1  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, YAERO    1345
     1  +.00000,                                                       YAERO    1346
     B  -.00045, -.00060, -.00067, -.00080, -.00090, -.00105, -.00115, YAERO    1347
     2  -.00130, -.00140, -.00150, -.00165, -.00170, -.00178, -.00185, YAERO    1348
     2  -.00190,                                                       YAERO    1349
     B  -.00140, -.00210, -.00280, -.00345, -.00400, -.00455, -.00495, YAERO    1350
     3  -.00530, -.00560, -.00590, -.00615, -.00625, -.00642, -.00655, YAERO    1351
     3  -.00665,                                                       YAERO    1352
     B  -.00990, -.01215, -.01440, -.01665, -.01875, -.02100, -.02300, YAERO    1353
     4  -.02425, -.02675, -.02850, -.03010, -.03160, -.03290, -.03340, YAERO    1354
     4  -.03290/                                                       YAERO    1355
*                                                                      YAERO    1356
*   ((RM/TDE)) WITH NOZZLES = 81 DEGREES AS A FUNCTION OF :            YAERO    1357
*     BETA   - 0 TO 90, 10 DEGREE INCREMENTS                           YAERO    1358
*     THALPHA    -  -4(1), 2(2), 8(3), 10(4), 16(5), 20(6), 24(7)      YAERO    1359
*     VELOCITIES-  .025(A), .05(B), .077(C), .096(D), .247(E)          YAERO    1360
*                                                                      YAERO    1361
      DATA(RMBF81U(I),I=1,70)/                                         YAERO    1362
     A  +.0000, +.0019, +.0035, +.0070, +.0120, +.0080, +.0085, +.0116, YAERO    1363
     1  +.0143, +.0160,                                                YAERO    1364
     A  +.0000, +.0000, +.0000, +.0015, +.0050, +.0045, +.0050, +.0088, YAERO    1365
     2  +.0122, +.0145,                                                YAERO    1366
     A  +.0000, -.0015, -.0030, -.0027, -.0020, -.0010, +.0015, +.0055, YAERO    1367
     3  +.0105, +.0135,                                                YAERO    1368
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SUBROUTINE AERODAT    74/175  OPT=2                    FTN 4.8+538        82/10/22. 15.12.40       PAGE     25

     A    +.0000, -.0021, -.0040, -.0060, -.0043, -.0028, +.0000, +.0042, YAERO      1369
     4    +.0397, +.0130,                                                  YAERO      1370
     A    +.0000, -.0035, -.0070, -.0100, -.0105, -.0080, -.0038, +.0023, YAERO      1371
     5    +.0082, +.0115,                                                  YAERO      1372
     A    +.0000, -.0047, -.0090, -.0135, -.0152, -.0125, -.0067, +.0003, YAERO      1373
     6    +.0070, +.0110,                                                  YAERO      1374
     A    +.0000, -.0057, -.0110, -.0167, -.0198, -.0163, -.0090, -.0012, YAERO      1375
     7    +.0055, +.0100/                                                  YAERO      1376
      DATA(RMBFA10(I),I=71,140)/                                           YAERO      1377
     B    +.0000, +.0032, +.0065, +.0140, +.0240, +.0175, +.0165, +.0230, YAERO      1378
     1    +.0283, +.0310,                                                  YAERO      1379
     B    +.0303, +.0030, +.0000, +.0030, +.0107, +.0085, +.0090, +.0175, YAERO      1380
     2    +.0245, +.0290,                                                  YAERO      1381
     B    +.0300, -.0030, -.0060, -.0050, -.0030, -.0012, +.0020, +.0110, YAERO      1382
     3    +.0215, +.0270,                                                  YAERO      1383
     B    +.0000, -.0040, -.0080, -.0100, -.0080, -.0050, -.0010, +.0090, YAERO      1384
     4    +.0195, +.0260,                                                  YAERO      1385
     B    +.0000, -.0070, -.0140, -.0203, -.0212, -.0160, -.0060, +.0045, YAERO      1386
     5    +.0160, +.0232,                                                  YAERO      1387
     B    +.0000, -.0095, -.0180, -.0275, -.0302, -.0248, -.0130, +.0010, YAERO      1388
     6    +.0135, +.0220,                                                  YAERO      1389
     B    +.0300, -.0110, -.0220, -.0330, -.0390, -.0328, -.0178, -.0025, YAERO      1390
     7    +.0105, +.0200/                                                  YAERO      1391
      DATA(RMBFA10(I),I=141,210)/                                          YAERO      1392
     C    +.0000, -.0092, -.0180, -.0258, -.0305, -.0305, -.0305, -.0305, YAERO      1393
     1    -.0305, -.0305,                                                  YAERO      1394
     C    +.0000, -.0170, -.0340, -.0480, -.0555, -.0555, -.0555, -.0555, YAERO      1395
     2    -.0555, -.0555,                                                  YAERO      1396
     C    +.0000, -.0250, -.0500, -.0680, -.0785, -.0785, -.0785, -.0785, YAERO      1397
     3    -.0785, -.0785,                                                  YAERO      1398
     C    +.0000, -.0280, -.0555, -.0750, -.0863, -.0863, -.0863, -.0863, YAERO      1399
     4    -.0863, -.0863,                                                  YAERO      1400
     C    +.0000, -.0350, -.0680, -.0945, -.1078, -.1078, -.1078, -.1078, YAERO      1401
     5    -.1078, -.1078,                                                  YAERO      1402
     C    +.0000, -.0375, -.0750, -.1060, -.1200, -.1200, -.1200, -.1200, YAERO      1403
     6    -.1200, -.1200,                                                  YAERO      1404
     C    +.0000, -.0415, -.0800, -.1100, -.1240, -.1240, -.1240, -.1240, YAERO      1405
     7    -.1240, -.1240/                                                  YAERO      1406
*                                                                          YAERO      1407
*     BETA  - 0 TO 45, 5 DEGREE INCREMENTS                                 YAERO      1408
*                                                                          YAERO      1409
      DATA(RMBF96H(I),I=1,70)/                                             YAERO      1410
     D    +.000, -.010, -.019, -.028, -.037, -.046, -.053, -.059, -.062,   YAERO      1411
     1    -.064,                                                           YAERO      1412
     D    +.000, -.016, -.032, -.047, -.063, -.077, -.088, -.097, -.103,   YAERO      1413
     2    -.106,                                                           YAERO      1414
     D    +.000, -.022, -.044, -.065, -.086, -.106, -.122, -.133, -.141,   YAERO      1415
     3    -.144,                                                           YAERO      1416
     D    +.000, -.024, -.048, -.071, -.094, -.115, -.132, -.143, -.152,   YAERO      1417
     4    -.155,                                                           YAERO      1418
     D    +.030, -.030, -.059, -.088, -.116, -.140, -.159, -.173, -.182,   YAERO      1419
     5    -.186,                                                           YAERO      1420
     D    +.000, -.034, -.065, -.097, -.129, -.154, -.174, -.188, -.197,   YAERO      1421
     6    -.200,                                                           YAERO      1422
     D    +.000, -.035, -.067, -.100, -.132, -.159, -.180, -.194, -.203,   YAERO      1423
     7    -.207/                                                           YAERO      1424
*                                                                          YAERO      1425
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SUBROUTINE AERODAT    74/175  OPT=2                    FTN 4.8+538        82/10/22. 15.12.49       PAGE    26

      *     BETA  - 0 TO 24, 2 DEGREE INCREMENTS                                            YAERO     1426
      *                                                                                     YAERO     1427
            DATA(PH2947U(I),I=1,91)/                                                        YAERO     1428
          E   +.000, -.027, -.055, -.033, -.110, -.135, -.163, -.190, -.217,                YAERO     1429
          1   -.245, -.275, -.300, -.325,                                                   YAERO     1430
          E   +.000, -.042, -.085, -.125, -.160, -.210, -.250, -.290, -.333,                YAERO     1431
          2   -.375, -.415, -.460, -.500,                                                   YAERO     1432
          E   +.000, -.055, -.110, -.165, -.220, -.277, -.330, -.385, -.440,                YAERO     1433
          3   -.495, -.550, -.605, -.660,                                                   YAERO     1434
          E   +.000, -.060, -.120, -.175, -.235, -.295, -.355, -.412, -.472,                YAERO     1435
          4   -.532, -.590, -.650, -.710,                                                   YAERO     1436
          E   +.000, -.070, -.137, -.208, -.275, -.345, -.413, -.480, -.550,                YAERO     1437
          5   -.620, -.690, -.757, -.825,                                                   YAERO     1438
          E   +.000, -.077, -.150, -.223, -.295, -.368, -.442, -.513, -.585,                YAERO     1439
          6   -.660, -.735, -.805, -.880,                                                   YAERO     1440
          E   +.000, -.075, -.140, -.210, -.282, -.350, -.420, -.490, -.560,                YAERO     1441
          7   -.625, -.700, -.765, -.835/                                                   YAERO     1442
      *                                                                                     YAERO     1443
      *                       *******************************                               YAERO     1444
      *                       *  YAWING MOMENT - LOW SPEED  *                               YAERO     1445
      *                       *******************************                               YAERO     1446
                                                                                            YAERO     1447
                                                                                            YAERO     1448
      *                                                                                     YAERO     1449
      *   YM/TDE/BETA AT NOZZLES = 00 (DEG) AS A FUNCTION OF :                              YAERO     1450
      *   ALPHA (DEG)   -4 TO 24, 2 DEGREE INCREMENTS                                       YAERO     1451
      *   ALT   (FT)    70.0                                                                YAERO     1452
      *   VELE              .05(A), .095(B), .247(C)                                        YAERO     1453
      *                                                                                     YAERO     1454
            DATA(YMTB00U(I),I=1,45) /                                                       YAERO     1455
          A   +.00178, +.00170, +.00162, +.00155, +.00145, +.00135, +.00122,                YAERO     1456
          A   +.00110, +.00098, +.00080, +.00068, +.00054, +.00037, +.00020,                YAERO     1457
          A   +.00000,                                                                      YAERO     1458
          B   +.00330, +.00365, +.00420, +.00512, +.00608, +.00705, +.00770,                YAERO     1459
          B   +.00740, +.00665, +.00560, +.00440, +.00308, +.00195, +.00095,                YAERO     1460
          B   +.00015,                                                                      YAERO     1461
          C   +.02315, +.02610, +.02940, +.03255, +.03490, +.03300, +.02950,                YAERO     1462
          C   +.02605, +.02360, +.02255, +.02170, +.02125, +.02090, +.02067,                YAERO     1463
          C   +.02050 /                                                                     YAERO     1464
      *                                                                                     YAERO     1465
      *   YM/TDE/BETA AT NOZZLES = 60 (DEG) AS A FUNCTION OF :                              YAERO     1466
      *   ALPHA (DEG)   -4 TO 24, 2 DEGREE STEPS                                            YAERO     1467
      *   ALT   (FT)    70.0                                                                YAERO     1468
      *   VELE              .05(A), .095(B), .247(C)                                        YAERO     1469
      *                                                                                     YAERO     1470
            DATA(YMTB60U(I),I=1,45) /                                                       YAERO     1471
          A   +.00110, +.00110, +.00110, +.00110, +.00107, +.00102, +.00099,                YAERO     1472
          A   +.00090, +.00084, +.00076, +.00068, +.00060, +.00050, +.00040,                YAERO     1473
          A   +.00030,                                                                      YAERO     1474
          B   +.00220, +.00245, +.00295, +.00360, +.00440, +.00510, +.00550,                YAERO     1475
          B   +.00550, +.00525, +.00485, +.00428, +.00358, +.00270, +.00180,                YAERO     1476
          B   +.00000,                                                                      YAERO     1477
          C   +.01370, +.01800, +.02200, +.02617, +.02965, +.03288, +.03480,                YAERO     1478
          C   +.03525, +.03312, +.02950, +.02538, +.02022, +.01500, +.01960,                YAERO     1479
          C   +.00330 /                                                                     YAERO     1480
      *                                                                                     YAERO     1481
      *   YM/TDE/BETA AT NOZZLES = 81 (DEG) AS A FUNCTION OF :                              YAERO     1482
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*     ALPHA (DEG) -4 TO 24, 2 DEGREE STEPS                                YAERO    1483
*     ALT   (FT)  70.0                                                    YAERO    1484
*     VELE          .025(A), .05(B), .077(C), .096(D), .247(E)            YAERO    1485
*                                                                         YAERO    1486
      DATA(YMTB81U(I),I=1,75) /                                           YAERO    1487
     A  +.00040, +.00043, +.00045, +.00047, +.00047, +.00047, +.00047,    YAERO    1488
     A  +.00047, +.00047, +.00045, +.00043, +.00040, +.00037, +.00035,    YAERO    1489
     A  +.00030,                                                          YAERO    1490
     B  +.00085, +.00085, +.00087, +.00087, +.00087, +.00087, +.00086,    YAERO    1491
     B  +.00085, +.00083, +.00081, +.00080, +.00075, +.00070, +.00056,    YAERO    1492
     B  +.00060,                                                          YAERO    1493
     C  +.00180, +.00200, +.00220, +.00240, +.00255, +.00260, +.00270,    YAERO    1494
     C  +.00267, +.00260, +.00245, +.00225, +.00198, +.00160, +.00120,    YAERO    1495
     C  +.00060,                                                          YAERO    1496
     D  +.00240, +.00275, +.00315, +.00348, +.00380, +.00396, +.00410,    YAERO    1497
     D  +.00420, +.00419, +.00402, +.00378, +.00328, +.00250, +.00160,    YAERO    1498
     D  +.00060,                                                          YAERO    1499
     E  +.01010, +.01515, +.02030, +.02500, +.02930, +.03285, +.03575,    YAERO    1500
     E  +.03790, +.03670, +.03330, +.02850, +.02175, +.01350, +.00500,    YAERO    1501
     E  -.00320 /                                                         YAERO    1502
*                                                                         YAERO    1503
*     DELTA(SF/T)/BETA AT NOZZLES = 60 (DEG) AS A FUNCTION OF :           YAERO    1504
*     ALPHA (DEG) -4 TO 24, 2 DEGREE INCRIMENTS                           YAERO    1505
*     ALT   (FT)     1.2(1), 4.12(2), 7.05(3)                             YAERO    1506
*     VELE           ALL VELOCITIES                                       YAERO    1507
*                                                                         YAERO    1508
      DATA(SFGE60U(I),I=1,45) /                                           YAERO    1509
     1  -.00072, -.00126, -.00147, -.00133, -.00113, -.00096, -.00082,    YAERO    1510
     1  -.00069, -.00057, -.00051, -.00051, -.00051, -.00051, -.00051,    YAERO    1511
     1  -.00051,                                                          YAERO    1512
     2  -.00116, -.00116, -.00116, -.00116, -.00116, -.00116, -.00116,    YAERO    1513
     2  -.00116, -.00116, -.00116, -.00116, -.00116, -.00116, -.00116,    YAERO    1514
     2  -.00116,                                                          YAERO    1515
     3  -.00010, -.00012, -.00014, -.00016, -.00017, -.00024, -.00030,    YAERO    1516
     3  -.00037, -.00043, -.00047, -.00051, -.00053, -.00056, -.00058,    YAERO    1517
     3  -.00059 /                                                         YAERO    1518
*                                                                         YAERO    1519
*     DELTA(SF/T)/BETA AT NOZZLES = 81 (DEG) AS A FUNCTION OF :           YAERO    1520
*     ALPHA (DEG) -4 TO 24, 2 DEGREE INCRIMENTS                           YAERO    1521
*     ALT   (FT)     1.2(1), 4.12(2), 7.05(3)                             YAERO    1522
*     VELE           .025(A), .05(B), .077(C), .096(D)                    YAERO    1523
*                                                                         YAERO    1524
      DATA(SFGE81U(I),I=1,90) /                                           YAERO    1525
     A  -.00064, -.00056, -.00057, -.00072, -.00094, -.00092, -.00054,    YAERO    1526
     1  -.00040, -.00036, -.00038, -.00038, -.00038, -.00038, -.00038,    YAERO    1527
     1  -.00038,                                                          YAERO    1528
     A  -.00064, -.00055, -.00049, -.00042, -.00038, -.00033, -.00030,    YAERO    1529
     2  -.00026, -.00024, -.00022, -.00020, -.00019, -.00018, -.00017,    YAERO    1530
     2  -.00017,                                                          YAERO    1531
     A  -.00006, -.00010, -.00014, -.00016, -.00017, -.00017, -.00016,    YAERO    1532
     3  -.00013, -.00011, -.00007, -.00003, +.00001, +.00003, +.00003,    YAERO    1533
     3  +.00000,                                                          YAERO    1534
     B  -.00126, -.00110, -.00114, -.00146, -.00189, -.00186, -.00100,    YAERO    1535
     1  -.00078, -.00072, -.00074, -.00074, -.00074, -.00074, -.00074,    YAERO    1536
     1  -.00074,                                                          YAERO    1537
     B  -.00144, -.00126, -.00110, -.00097, -.00084, -.00074, -.00064,    YAERO    1538
     2  -.00054, -.00044, -.00034, -.00024, -.00013, -.00003, +.00008,    YAERO    1539
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      2  +.00018,                                                          YAERO    1540
      8  -.00022, -.00031, -.00037, -.00038, -.00040, -.00039, -.00038,    YAERO    1541
      3  -.00035, -.00032, -.00026, -.00022, -.00016, -.00012, -.00004,    YAERO    1542
      3  +.00004 /                                                         YAERO    1543
       DATA(SFGEBIH(I),I=91,130) /                                         YAERO    1544
      C  -.00196, -.00174, -.00175, -.00215, -.00300, -.00296, -.00170,    YAERO    1545
      1  -.00128, -.00112, -.00116, -.00116, -.00116, -.00116, -.00116,    YAERO    1546
      1  -.00116,                                                          YAERO    1547
      C  -.00227, -.00205, -.00184, -.00161, -.00140, -.00118, -.00097,    YAERO    1548
      2  -.00076, -.00056, -.00036, -.00016, +.00003, +.00021, +.00039,    YAERO    1549
      2  +.00056,                                                          YAERO    1550
      C  -.00050, -.00055, -.00060, -.00063 ,-.00066, -.00066, -.00065,    YAERO    1551
      3  -.00063, -.00059, -.00054, -.00046, -.00038, -.00027, -.00015,    YAERO    1552
      3  -.00000,                                                          YAERO    1553
      D  -.00238, -.00214, -.00220, -.00260, -.00362, -.00372, -.00212,    YAERO    1554
      1  -.00152, -.00140, -.00144, -.00144, -.00144, -.00144, -.00144,    YAERO    1555
      1  -.00144,                                                          YAERO    1556
      D  -.00296, -.00264, -.00234, -.00204, -.00175, -.00145, -.00116,    YAERO    1557
      2  -.00088, -.00059, -.00031, -.00004, +.00021, +.00046, +.00070,    YAERO    1558
      .  .00092,                                                           YAERO    1559
      D  -.00066, -.00072, -.00077, -.00081, -.00084, -.00085, -.00086,    YAERO    1560
      3  -.00084, -.00080, -.00073, -.00064, -.00051, -.00036, -.00020,    YAERO    1561
      3  +.00000 /                                                         YAERO    1562
*                                                                          YAERO    1563
*     ((RM/IDE)/BETA)G.E. WITH NOZZLES = 0 AND 60 (DEG) AS A FUNCTION OF:  YAERO    1564
*       ALPHA    = -4 TO 24, 2 DEGREE STEPS                                YAERO    1565
*       ALTITUDE =  1.2(1), 4.12(2), 7.05(3), 70.0(4)                      YAERO    1566
*        VELOCITY =  .05(A), .096(B)                                       YAERO    1567
*                                                                          YAERO    1568
       DATA(RMGE00H(I),I=1,60)/                                            YAERO    1569
      A  +.00010, +.00010, +.00012, +.00017, +.00030, +.00050, +.00070,    YAERO    1570
      1  +.00110, +.00130, +.00130, +.00127, +.00125, +.00123, +.00113,    YAERO    1571
      1  +.00105,                                                          YAERO    1572
      A  +.00010, -.00005, -.00020, -.00036, -.00030, -.00007, +.00030,    YAERO    1573
      2  +.00090, +.00110, +.00125, +.00140, +.00143, +.00139, +.00130,    YAERO    1574
      2  +.00120,                                                          YAERO    1575
      A  +.00010, -.00025, -.00055, -.00083, -.00085, -.00060, -.00018,    YAERO    1576
      3  +.00060, +.00095, +.00123, +.00150, +.00158, +.00155, +.00149,    YAERO    1577
      3  +.00136,                                                          YAERO    1578
      A  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000,    YAERO    1579
      4  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000,    YAERO    1580
      4  +.00000/                                                          YAERO    1581
       DATA(RMGE00H(I),I=61,120)/                                          YAERO    1582
      B  +.00000, +.00025, +.00055, +.00110, +.00170, +.00233, +.00300,    YAERO    1583
      1  +.00360, +.00400, +.00430, +.00445, +.00455, +.00455, +.00449,    YAERO    1584
      1  +.00440,                                                          YAERO    1585
      B  +.00000, +.00012, +.00045, +.00100, +.00160, +.00210, +.00270,    YAERO    1586
      2  +.00340, +.00385, +.00420, +.00440, +.00455, +.00465, +.00470,    YAERO    1587
      2  +.00475,                                                          YAERO    1588
      B  +.00060, -.00050, -.00060, -.00080, -.00057, -.00005, +.00050,    YAERO    1589
      3  +.00150, +.00270, +.00365, +.00420, +.00455, +.00480, +.00495,    YAERO    1590
      3  +.00505,                                                          YAERO    1591
      B  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000,    YAERO    1592
      4  +.00000, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000,    YAERO    1593
      4  +.00000/                                                          YAERO    1594
*                                                                          YAERO    1595
*     ((RM/IDE)) WITH NOZZLES = 81 (DEG) AND ALTITUDE = 1.2 (FT) AS A      YAERO    1596
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*     FUNCTION OF:                                                        YAERO    1597
*       ABS(BETA)   - 0 TO 90, 10 DEGREE STEPS                            YAERO    1598
*       THALPHA     - -4(1), 2(2), 8(3), 10(4), 16(5), 20(6), 24(7)       YAERO    1599
*       VELOCITIES - .025(A), .05(B), .077(C)                             YAERO    1600
*                                                                         YAERO    1601
       DATA(RMATHIU(I),I=1,70)/                                           YAERO    1602
     A   +.0000, +.0052, +.0100, +.0135, +.0145, +.0145, +.0145, +.0145,  YAERO    1603
     1   +.0145, +.0145,                                                  YAERO    1604
     A   +.0000, +.0050, +.0095, +.0125, +.0135, +.0135, +.0135, +.0135,  YAERO    1605
     2   +.0135, +.0135,                                                  YAERO    1606
     A   +.0000, +.0015, +.0030, +.0065, +.0090, +.0090, +.0090, +.0090,  YAERO    1607
     3   +.0090, +.0090,                                                  YAERO    1608
     A   +.0000, -.0025, -.0030, +.0000, +.0025, +.0026, +.0027, +.0028,  YAERO    1609
     4   +.0029, +.0030,                                                  YAERO    1610
     A   +.0000, -.0025, -.0030, +.0000, +.0025, +.0026, +.0027, +.0028,  YAERO    1611
     5   +.0029, +.0030,                                                  YAERO    1612
     A   +.0000, -.0025, -.0030, +.0000, +.0025, +.0026, +.0027, +.0028,  YAERO    1613
     6   +.0029, +.0030,                                                  YAERO    1614
     A   +.0000, -.0025, -.0030, +.0000, +.0025, +.0026, +.0027, +.0028,  YAERO    1615
     7   +.0029, +.0030/                                                  YAERO    1616
       DATA(RMATHIU(I),I=71,140)/                                         YAERO    1617
     B   +.0000, +.0107, +.0200, +.0265, +.0290, +.0290, +.0290, +.0290,  YAERO    1618
     1   +.0290, +.0290,                                                  YAERO    1619
     B   +.0000, +.0100, +.0185, +.0245, +.0265, +.0265, +.0265, +.0265,  YAERO    1620
     2   +.0265, +.0265,                                                  YAERO    1621
     B   +.0000, +.0020, +.0060, +.0130, +.0180, +.0180, +.0180, +.0180,  YAERO    1622
     3   +.0180, +.0180,                                                  YAERO    1623
     B   +.0000, -.0050, -.0070, +.0000, +.0070, +.0070, +.0070, +.0070,  YAERO    1624
     4   +.0070, +.0070,                                                  YAERO    1625
     B   +.0000, -.0050, -.0070, +.0000, +.0070, +.0070, +.0070, +.0070,  YAERO    1626
     5   +.0070, +.0070,                                                  YAERO    1627
     B   +.0000, -.0050, -.0070, +.0000, +.0070, +.0070, +.0070, +.0070,  YAERO    1628
     6   +.0070, +.0070,                                                  YAERO    1629
     B   +.0000, -.0050, -.0070, +.0000, +.0070, +.0070, +.0070, +.0070,  YAERO    1630
     7   +.0070, +.0070/                                                  YAERO    1631
       DATA(RMATHIU(I),I=141,210)/                                        YAERO    1632
     C   +.0000, -.0092, -.0180, -.0258, -.0305, -.0305, -.0305, -.0305,  YAERO    1633
     1   -.0305, -.0305,                                                  YAERO    1634
     C   +.0000, -.0170, -.0340, -.0480, -.0555, -.0555, -.0555, -.0555,  YAERO    1635
     2   -.0555, -.0555,                                                  YAERO    1636
     C   +.0000, -.0250, -.0500, -.0680, -.0785, -.0785, -.0785, -.0785,  YAERO    1637
     3   -.0785, -.0785,                                                  YAERO    1638
     C   +.0000, -.0280, -.0555, -.0750, -.0863, -.0863, -.0863, -.0863,  YAERO    1639
     4   -.0863, -.0863,                                                  YAERO    1640
     C   +.0000, -.0350, -.0680, -.0945, -.1078, -.1078, -.1078, -.1078,  YAERO    1641
     5   -.1078, -.1078,                                                  YAERO    1642
     C   +.0000, -.0395, -.0790, -.1060, -.1200, -.1200, -.1200, -.1200,  YAERO    1643
     6   -.1200, -.1200,                                                  YAERO    1644
     C   +.0000, -.0415, -.0800, -.1100, -.1240, -.1240, -.1240, -.1240,  YAERO    1645
     7   -.1240, -.1240/                                                  YAERO    1646
*                                                                         YAERO    1647
*     ((RM/TOF)) WITH NOZZLES = 91 (DEG) AND ALTITUDE = 4.12 (FT) AS A    YAERO    1648
*     FUNCTION OF :                                                       YAERO    1649
*       ABS(BETA) - 0 TO 90, 10 DEGREE INCREMENTS                         YAERO    1650
*       THALPHA     - -4(1), 2(2), 8(3), 10(4), 16(5), 20(6), 24(7)       YAERO    1651
*       VELOCITIES - .025(A), .05(B), .077(C)                             YAERO    1652
*                                                                         YAERO    1653
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      DATA(RM4P12U(I),I=1,70)/                                          YAERO
     A  +.0000, +.0100, +.0053, +.0025, +.0050, +.0130, +.0190, +.0210, YAERO
     1  +.0205, +.0190,                                                 YAERO
     A  +.0000, +.0060, +.0190, +.0199, +.0210, +.0220, +.0230, +.0227, YAERO
     2  +.0180, +.0160,                                                 YAERO
     A  +.0000, +.0080, +.0050, +.0180, +.0260, +.0248, +.0255, +.0293, YAERO
     3  +.0350, +.0420,                                                 YAERO
     A  +.0300, +.0030, -.0015, +.0200, +.0302, +.0278, +.0280, +.0310, YAERO
     4  +.0355, +.0400,                                                 YAERO
     A  +.0000, +.0060, -.0030, +.0075, +.0120, +.0130, +.0140, +.0150, YAERO
     5  +.0168, +.0190,                                                 YAERO
     A  +.0300, +.0070, +.0020, -.0075, -.0120, -.0090, -.0080, -.0065, YAERO
     6  -.0050, -.0040,                                                 YAERO
     A  +.0000, +.0100, +.0070, +.0040, +.0020, +.0015, +.0010, +.0012, YAERO
     7  +.0318, +.0020/                                                 YAERO
      DATA(RM4P12U(I),I=71,140)/                                        YAERO
     B  +.0000, -.0055, -.0170, -.0090, +.0050, +.0050, +.0050, +.0050, YAERO
     1  +.0050, +.0050,                                                 YAERO
     B  +.0000, +.0205, +.0205, +.0200, +.0190, +.0190, +.0190, +.0190, YAERO
     2  +.0190, +.0190,                                                 YAERO
     B  +.0300, +.0080, +.0100, +.0205, +.0480, +.0480, +.0480, +.0480, YAERO
     3  +.0480, +.0480,                                                 YAERO
     B  +.0300, +.0025, -.0007, +.0150, +.0350, +.0350, +.0350, +.0350, YAERO
     4  +.0350, +.0350,                                                 YAERO
     B  +.0000, -.0060, -.0095, +.0070, +.0290, +.0290, +.0290, +.0290, YAERO
     5  +.0290, +.0290,                                                 YAERO
     B  +.0300, -.0030, -.0190, -.0240, -.0245, -.0245, -.0245, -.0245, YAERO
     6  -.0245, -.0245,                                                 YAERO
     B  +.0000, -.0080, -.0230, -.0165, -.0050, -.0050, -.0050, -.0050, YAERO
     7  -.0050, -.0050/                                                 YAERO
      DATA(RM4P12U(I),I=141,210)/                                       YAERO
     C  +.0000, -.0092, -.0180, -.0258, -.0305, -.0305, -.0365, -.0305, YAERO
     1  -.0305, -.0305,                                                 YAERO
     C  +.0000, -.0170, -.0340, -.0480, -.0555, -.0555, -.0555, -.0555, YAERO
     2  -.0555, -.0555,                                                 YAERO
     C  +.0000, -.0250, -.0500, -.0680, -.0785, -.0785, -.0785, -.0785, YAERO
     3  -.0785, -.0785,                                                 YAERO
     C  +.0000, -.0280, -.0555, -.0750, -.0863, -.0863, -.0863, -.0863, YAERO
     4  -.0863, -.0863,                                                 YAERO
     C  +.0000, -.0350, -.0680, -.0945, -.1078, -.1078, -.1078, -.1078, YAERO
     5  -.1078, -.1078,                                                 YAERO
     C  +.0000, -.0395, -.0780, -.1060, -.1200, -.1200, -.1200, -.1200, YAERO
     6  -.1200, -.1200,                                                 YAERO
     C  +.0000, -.0415, -.0800, -.1100, -.1240, -.1240, -.1240, -.1240, YAERO
     7  -.1240, -.1240/                                                 YAERO
*                                                                       YAERO
*   ((PM/IDE)) WITH NOZZLES = 81 (DEG) AND ALTITUDE = 7.05 (FT) AS A    YAERO
*   FUNCTION OF:                                                        YAERO
*      ABS(BETA) - 0 TO 90, 10 DEGREE INCRIMENTS                        YAERO
*      THALPHA   - -4(1), 2(2), 8(3), 10(4), 16(5), 20(6), 24(7)        YAERO
*      VELOCITIES- .025(A), .05(B), .077(C)                             YAERO
*                                                                       YAERO
      DATA(RM7P05U(I),I=1,70)/                                          YAERO
     A  +.0000, +.0000, +.0001, +.0010, +.0030, +.0085, +.0130, +.0118, YAERO
     1  +.0080, +.0020,                                                 YAERO
     A  +.0000, +.0010, +.0020, +.0045, +.0095, +.0160, +.0190, +.0195, YAERO
     2  +.0186, +.0173,                                                 YAERO
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     A  +.0000, +.0110, +.0210, +.0300, +.0390, +.0455, +.0495, +.0500,  YAERO
     3  +.0490, +.0470,                                                  YAERO
     A  +.0000, +.0115, +.0220, +.0315, +.0390, +.0430, +.0460, +.0480,  YAERO
     4  +.0490, +.0500,                                                  YAERO
     A  +.0000, -.0030, -.0062, -.0085, -.0100, -.0115, -.0115, -.0101,  YAERO
     5  -.0093, -.0080,                                                  YAERO
     A  +.0000, +.0001, +.0002, +.0005, +.0010, +.0020, +.0030, +.0030,  YAERO
     6  +.0030, +.0031,                                                  YAERO
     A  +.0000, -.0020, -.0035, -.0040, -.0040, -.0024, -.0010, +.0010,  YAERO
     7  +.0030, +.0055/                                                  YAERO
      DATA(RM7P050(I),I=71,140)/                                         YAERO
     B  +.0000, +.0150, +.0305, +.0450, +.0600, +.0600, +.0600, +.0600,  YAERO
     1  +.0600, +.0600,                                                  YAERO
     B  +.0000, +.0093, +.0190, +.0310, +.0430, +.0430, +.0430, +.0430,  YAERO
     2  +.0430, +.0430,                                                  YAERO
     B  +.0000, +.0270, +.0450, +.0535, +.0585, +.0585, +.0585, +.0585,  YAERO
     3  +.0585, +.0585,                                                  YAERO
     B  +.0000, +.0150, +.0290, +.0395, +.0450, +.0430, +.0430, +.0430,  YAERO
     4  +.0430, +.0430,                                                  YAERO
     B  +.0000, +.0025, +.0070, +.0145, +.0230, +.0230, +.0230, +.0230,  YAERO
     5  +.0230, +.0230,                                                  YAERO
     B  +.0000, -.0020, +.0000, +.0040, +.0100, +.0100, +.0100, +.0100,  YAERO
     6  +.0100, +.0100,                                                  YAERO
     B  +.0000, -.0085, -.0085, -.0025, +.0070, +.0070, +.0070, +.0070,  YAERO
     7  +.0070, +.0070/                                                  YAERO
      DATA(RM7P050(I),I=141,210)/                                        YAERO
     C  +.0000, -.0092, -.0180, -.0258, -.0305, -.0305, -.0305, -.0305,  YAERO
     1  -.0305, -.0305,                                                  YAERO
     C  +.0000, -.0170, -.0340, -.0480, -.0555, -.0555, -.0555, -.0555,  YAERO
     2  -.0555, -.0555,                                                  YAERO
     C  +.0000, -.0250, -.0500, -.0680, -.0785, -.0785, -.0785, -.0785,  YAERO
     3  -.0785, -.0785,                                                  YAERO
     C  +.0000, -.0280, -.0555, -.0750, -.0863, -.0863, -.0863, -.0863,  YAERO
     4  -.0863, -.0863,                                                  YAERO
     C  +.0000, -.0350, -.0680, -.0945, -.1078, -.1078, -.1078, -.1078,  YAERO
     5  -.1078, -.1078,                                                  YAERO
     C  +.0000, -.0395, -.0780, -.1060, -.1200, -.1200, -.1200, -.1200,  YAERO
     6  -.1200, -.1200,                                                  YAERO
     C  +.0000, -.0415, -.0800, -.1100, -.1240, -.1240, -.1240, -.1240,  YAERO
     7  -.1240, -.1240/                                                  YAERO
*                                                                        YAERO
*    DELTA((YM/IDF)/BETAIG.E. AT NOZZLES = 60 (DEG) AS A FUNCTION OF :   YAERO
*    ALPHA (DEG) -4 TO 24, 2 DEGREE STEPS                                YAERO
*    ALT    (FT)  1.2(1), 4.12(2), 7.05(3)                               YAERO
*    VELE          ALL VELOCITIES                                        YAERO
*                                                                        YAERO
      DATA(YMGE60U(I),I=1,45) /                                          YAERO
     1  +.00350, +.00490, +.00520, +.00495, +.00430, +.00320, +.00180,   YAERO
     1  +.00083, +.00000, +.00000, +.00000, +.00000, +.00000, +.00000,   YAERO
     1  +.00000,                                                         YAERO
     2  +.00500, +.00500, +.00500, +.00500, +.00500, +.00500, +.00500,   YAERO
     2  +.00500, +.00500, +.00500, +.00500, +.00500, +.00500, +.00500,   YAERO
     2  +.00500,                                                         YAERO
     3  +.00000, +.00000, +.00000, +.00000, +.00000, +.00005, +.00023,   YAERO
     3  +.00045, +.00075, +.00105, +.00135, +.00155, +.00175, +.00190,   YAERO
     3  +.00200 /                                                        YAERO
*                                                                        YAERO
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*  DELTA((YM/TDE)/DETA).G.E. AT NOZZLES = 81 (DEG) AS A FUNCTION OF :    YAERO
*  ALPHA(DEG)   -4 TO 24, 2 DEGREE STEPS                                  YAERO
*  ALT    (FT)     1.20(1), 4.12(2), 7.05(3)                              YAERO
*  VFLE            .025(A), .05(B), .077(C), .096(D)                      YAERO
*                                                                         YAERO
     DATA(YMGE81H(I),I=1,45) /                                            YAERO
    A  +.00060, +.00024, -.00001, -.00017, -.00020, -.00013, +.00009,     YAERO
    1  +.00020, +.00024, +.00018, +.00018, +.00018, +.00018, +.00018,     YAERO
    1  +.00018,                                                           YAERO
    A  +.00060, +.00010, -.00016, -.00024, -.00026, -.00024, -.00014,     YAERO
    2  +.00000, +.00019, +.00039, +.00053, +.00047, +.00023, +.00003,     YAERO
    2  -.00012,                                                           YAERO
    A  -.00013, -.00007, -.00004, -.00007, -.00014, -.00024, -.00030,     YAERO
    3  -.00032, -.00030, -.00028, -.00024, -.00018, -.00014, -.00010,     YAERO
    3  -.00006 /                                                          YAERO
     DATA(YMGE81H(I),I=46,90) /                                           YAERO
    B  +.00114, +.00046, -.00012, -.00038, -.00044, -.00026, +.00016,     YAERO
    1  +.00040, +.00046, +.00036, +.00036, +.00036, +.00036, +.00036,     YAERO
    1  +.00036,                                                           YAERO
    B  +.00240, +.00200, +.00164, +.00132, +.00103, +.00079, +.00058,     YAERO
    2  +.00038, +.00025, +.00029, +.00039, +.00015, -.00007, -.00022,     YAERO
    2  -.00031,                                                           YAERO
    B  +.00026, +.00080, +.00097, +.00088, +.00049, +.00004, -.00018,     YAERO
    3  -.00033, -.00044, -.00052, -.00057, -.00061, -.00063, -.00064,     YAERO
    3  -.00064 /                                                          YAERO
     DATA(YMGE81H(I),I=91,135) /                                          YAERO
    C  +.00175, +.00056, -.00020, -.00060, -.00070, -.00040, +.00025,     YAERO
    1  +.00057, +.00063, +.00050, +.00050, +.00050, +.00050, +.00050,     YAERO
    1  +.00050,                                                           YAERO
    C  +.00535, +.00450, +.00375, +.00310, +.00250, +.00195, +.00140,     YAERO
    2  +.00090, +.00040, +.00010, -.00005, -.00028, -.00070, -.00094,     YAERO
    2  -.00105,                                                           YAERO
    C  +.00100, +.00170, +.00255, +.00180, +.00100, +.00050, +.00015,     YAERO
    3  -.00015, -.00043, -.00066, -.00090, -.00107, -.00127, -.00142,     YAERO
    3  -.00155 /                                                          YAERO
     DATA(YMGE81H(I),I=136,180) /                                         YAERO
    D  +.00215, +.00090, -.00025, -.00075, -.00090, -.00055, +.00027,     YAERO
    1  +.00070, +.00078, +.00065, +.00065, +.00065, +.00065, +.00065,     YAERO
    1  +.00065,                                                           YAERO
    D  +.00815, +.00690, +.00570, +.00460, +.00357, +.00262, +.00180,     YAERO
    2  +.00110, +.00048, -.00007, -.00059, -.00090, -.00125, -.00150,     YAERO
    2  -.00175,                                                           YAERO
    D  +.00100, +.00285, +.00378, +.00373, +.00307, +.00168, +.00050,     YAERO
    3  -.00007, -.00050, -.00090, -.00120, -.00155, -.00180, -.00210,     YAERO
    3  -.00230 /                                                          YAERO
*                                                                         YAERO
* SIDE FORCE AND YAWING MOMENT DUE TO PHI BREAK LINES AS A FUNCTION OF :YAERO
*                                                                         YAERO
* NOZZLES          - 81 (DEG)                                             YAERO
*   VFLE           0.0 TO 0.15 IN 0.1 INCREMENTS                          YAERO
*   ALTITUDE       1.2(1), 4.12(2), 7.05(3)                               YAERO
*   K              K=0(A) , K=1(B)                                        YAERO
*                                                                         YAERO
     DATA(YMSFB1U(I),I=1,96) /                                            YAERO
    A    180.0,   180.0,   180.0,   180.0,   180.0,   141.0,   104.0,    73.0, YAERO
    1     50.0,    31.5,    18.0,     8.5,     2.0,     0.0,     0.0,     0.0, YAERO
    A    180.0,   180.0,   180.0,   164.0,   131.5,   100.0,    71.0,    47.5, YAERO
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     2    30.0,   16.0,    6.0,    0.0,    0.0,    0.0,    0.0,    0.0, YAERO    1825
     A   149.0,  130.0,  110.0,   90.0,   70.0,   50.0,   30.0,   10.0, YAERO    1826
     3     0.0,    0.0,    0.0,    0.0,    0.0,    0.0,    0.0,    0.0, YAERO    1827
     B   183.0,  165.0,  141.0,  117.0,   93.0,   70.0,   49.0,   31.5, YAERO    1828
     1    16.0,    7.0,    0.0,    0.0,    0.0,    0.0,    0.0,    0.0, YAERO    1829
     B   140.0,  120.0,  100.0,   80.0,   60.0,   40.0,   22.0,   10.0, YAERO    1830
     2     0.0,    0.0,    0.0,    0.0,    0.0,    0.0,    0.0,    0.0, YAERO    1831
     B    97.0,   82.0,   67.0,   52.0,   36.5,   21.5,    7.0,    0.0, YAERO    1832
     3     0.0,    0.0,    0.0,    0.0,    0.0,    0.0,    0.0,    0.0 /YAERO    1833
*                                                                       YAERO    1834
* SIDE FORCE AND YAWING MOMENT DUE TO PHI BREAK LINES AS A FUNCTION OF: YAERO    1835
*                                                                       YAERO    1836
* NOZZLES    - 60 (DEG)                                                 YAERO    1837
*  VELE          0.0 TO 0.16 IN 0.1 INCREMENTS                          YAERO    1838
*  ALTITUDE      1.2(1), 4.12(2), 7.05(3)                               YAERO    1839
*  K             K=0(A) , F=1(B)                                        YAERO    1840
*                                                                       YAERO    1841
      DATA(YMSF60U(I),I=1,102)/                                         YAERO    1842
     A   117.0, 109.0, 102.0,  94.0,  87.0,  79.5,  72.0,  64.0,  57.0, YAERO    1843
     1    49.0,  42.0,  34.0,  27.0,  19.0,  11.5,   4.0,   0.0,        YAERO    1844
     A    92.0,  85.0,  77.0,  70.0,  62.0,  55.0,  47.5,  40.0,  32.5, YAERO    1845
     2    25.0,  17.0,  10.2,   2.0,   0.0,   0.0,   0.0,   0.0,        YAERO    1846
     A    82.0,  75.0,  67.5,  60.0,  52.5,  45.0,  37.5,  29.5,  22.5, YAERO    1847
     3    15.0,   7.0,   0.0,   0.0,   0.0,   0.0,   0.0,   0.0,        YAERO    1848
     B    97.0,  90.0,  82.0,  75.0,  68.0,  60.0,  52.0,  45.0,  37.0, YAERO    1849
     1    30.0,  22.0,  15.0,   7.0,   0.0,   0.0,   0.0,   0.0,        YAERO    1850
     B    77.0,  70.0,  62.0,  55.0,  47.0,  40.0,  32.0,  24.0,  17.0, YAERO    1851
     2    10.0,   2.0,   0.0,   0.0,   0.0,   0.0,   0.0,   0.0,        YAERO    1852
     B    74.0,  67.0,  59.0,  51.5,  44.0,  36.5,  29.0,  21.5,  14.0, YAERO    1853
     3     6.5,   0.0,   0.0,   0.0,   0.0,   0.0,   0.0,   0.0  /      YAERO    1854
*                                                                       YAERO    1855
* PHI BIAS FOR SIDE FORCE WITH NOZZLES = 60 (DEG) AS A FUNCTION OF :    YAERO    1856
*                                                                       YAERO    1857
* BETA      - 0 TO 30, 2 DEGREE INCREMENT                               YAERO    1858
* ALTITUDE  - 1.2(1), 4.12(2), 7.05(3)                                  YAERO    1859
* VELE      - .05(A), .095(B)                                           YAERO    1860
*                                                                       YAERO    1861
      DATA(PBSF60U(I),I=1,96) /                                         YAERO    1862
     A  +.00, -.25, -.45, -.60, -.70, -.80, -.85, -.90, -.92, -.95,     YAERO    1863
     1  -.95, -.94, -.91, -.79, -.36, -.80,                             YAERO    1864
     A  +.00, -.35, -.62, -.90,-1.13,-1.35,-1.56,-1.75,-1.94,-2.12,     YAERO    1865
     2 -2.27,-2.40,-2.55,-2.68,-2.79,-2.90,                             YAERO    1866
     A  +.00, -.48, -.87,-1.27,-1.69,-1.93,-2.25,-2.43,-2.93,-3.10,     YAERO    1867
     3 -3.40,-3.63,-3.88,-4.10,-4.35,-4.50,                             YAERO    1868
     B  +.00, -.50, -.85,-1.10,-1.30,-1.45,-1.55,-1.60,-1.62,-1.62,     YAERO    1869
     1 -1.59,-1.57,-1.50,-1.40,-1.30,-1.20,                             YAERO    1870
     B  +.00, -.50, -.93,-1.30,-1.62,-1.90,-2.20,-2.50,-2.75,-3.00,     YAERO    1871
     2 -3.25,-3.47,-3.70,-3.90,-4.12,-4.30,                             YAERO    1872
     B  +.00, -.83,-1.20,-1.70,-2.15,-2.60,-2.97,-3.35,-3.72,-4.10,     YAERO    1873
     3 -4.40, -4.77,-5.06,-5.40,-5.70,-6.00 /                           YAERO    1874
*                                                                       YAERO    1875
* PHI BIAS FOR SIDE FORCE WITH NOZZLES = 81 (DEG) AS A FUNCTION OF:     YAERO    1876
*                                                                       YAERO    1877
* BETA      - 0 TO 180, 10 DEGREE STEPS                                 YAERO    1878
* ALTITUDE  - 1.2(1), 4.12(2), 7.05(3)                                  YAERO    1879
* VELOCITY  - .025(A), .050(B)                                          YAERO    1880
*                                                                       YAERO    1881
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      DATA(BASFRIU(I),I=1,114) /                                       YAERO
     A  -0.00, -0.30, -0.60, -0.85, -1.10, -1.36, -1.58, -1.76, -1.89,  YAERO
     1  -2.00, -2.08, -2.10, -2.08, -2.02, -1.88, -1.63,-1.28,-0.75,+0.,YAERO
     A  +0.00, -0.30, -0.72, -1.03, -1.35, -1.64, -1.90, -2.10, -2.30,  YAERO
     2  -2.43, -2.53, -2.60, -2.56, -2.50, -2.33, -2.08,-1.70,-1.10,+0.,YAERO
     A  +0.00, -0.45, -0.87, -1.27, -1.65, -2.00, -2.30, -2.57, -2.80,  YAERO
     3  -3.00, -3.15, -3.22, -3.22, -3.17, -3.00, -2.75,-2.34,-1.64,+0.,YAERO
     8  +0.00, -0.48, -0.95, -1.38, -1.80, -2.12, -2.40, -2.65, -2.82,  YAERO
     1  -2.94, -3.00, -2.96, -2.90, -2.72, -2.50, -2.15,-1.62,-0.95,+0.,YAERO
     B  +0.00, -0.58, -1.10, -1.60, -2.00, -2.40, -2.70, -3.00, -3.20,  YAERO
     2  -3.30, -3.40, -3.38, -3.30, -3.12, -2.90, -2.50,-1.95,-1.20,+0.,YAERO
     B  +0.00, -0.68, -1.20, -1.86, -2.40, -2.82, -3.20, -3.50, -3.70,  YAERO
     3  -3.88, -3.97, -4.00, -3.90, -3.75, -3.45, -3.05,-2.40,-1.52,+0./YAERO
*                                                                       YAERO
* (DELTA SF/T)PHI WITH NOZZLES = 60 (DEG) AS A FUNCTION OF :            YAERO
*                                                                       YAERO
* (PHI)E    - 0 TO 20                                                   YAERO
* ALTITUDE - 1.2(1), 4.12(2), 7.05(3), 70.0(4)                          YAERO
* VELOCITY - .05(A), .096(B)                                            YAERO
*                                                                       YAERO
      DATA(SFTP60U(I),I=1,84)/                                          YAERO
     A  +.0000, +.0013, -.0027, -.0135, -.0217, -.0248, -.0240, -.0220, YAERO
     1  -.0189, -.0150, -.0108, -.0069, -.0035, -.0013, +.0004, +.0017, YAERO
     1  +.0026, +.0035, +.0042, +.0046, +.0050,                         YAERO
     A  +.0000, +.0103, +.0105, +.0020, -.0119, -.0197, -.0220, -.0180, YAERO
     2  -.0145, -.0100, -.0053, -.0025, +.0003, +.0025, +.0040, +.0055, YAERO
     2  +.0066, +.0077, +.0085, +.0090, +.0095,                         YAERO
     A  +.0000, +.0070, +.0080, +.0077, +.0068, +.0055, +.0042, +.0026, YAERO
     3  +.0012, +.0002, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO
     3  +.0000, +.0002, +.0000, +.0000, +.0000,                         YAERO
     A  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO
     4  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO
     4  +.0000, +.0000, +.0000, +.0000, +.0000/                         YAERO
      DATA(SFTP60U(I),I=85,168)/                                        YAERO
     B  +.0000, +.0018, +.0011, -.0027, -.0090, -.0147, -.0180, -.0181, YAERO
     1  -.0132, -.0048, +.0034, +.0142, +.0195, +.0223, +.0240, +.0255, YAERO
     1  +.0262, +.0265, +.0269, +.0270, +.0270,                         YAERO
     B  +.0000, +.0100, +.0127, +.0129, +.0124, +.0115, +.0107, +.0094, YAERO
     2  +.0082, +.0065, +.0047, +.0030, +.0015, +.0006, +.0002, +.0001, YAERO
     2  +.0001, +.0001, +.0001, +.0001, +.0001,                         YAERO
     B  +.0030, +.0094, +.0113, +.0105, +.0092, +.0075, +.0055, +.0035, YAERO
     3  +.0015, +.0007, -.0008, -.0015, -.0020, -.0025, -.0025, -.0025, YAERO
     3  -.0025, -.0025, -.0025, -.0025, -.0025,                         YAERO
     B  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO
     4  +.0000, +.0000, +.0010, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO
     4  +.0000, +.0000, +.0000, +.0000, +.0000/                         YAERO
*                                                                       YAERO
*   (DELTA SF/T)PHI WITH NOZZLES = 81(DEG) AS A FUNCTION OF:            YAERO
*                                                                       YAERO
*   (PHI)E  - 0 TO 20                                                   YAERO
*   ALTITUDE - 1.2(1), 4.12(2), 7.05(3), 70.0(4)                        YAERO
*   VELOCITY - 0.0(A), .025(B), .051(C), .077(D), .096(E)               YAERO
*                                                                       YAERO
      DATA(SFTP81U(I),I=1,84)/                                          YAERO
     A  +.0000, -.0157, -.0252, -.0282, -.0277, -.0252, -.0217, -.0180, YAERO
     1  -.0137, -.0095, -.0054, -.0023, -.0003, +.0000, +.0000, +.0000, YAERO
     1  +.0000, +.0000, +.0000, +.0000, +.0000,                         YAERO
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     A  +.0000, -.0125, -.0201, -.0205, -.0100, -.0045, -.0030, -.0024, YAERO      1939
     2  -.0020, -.0014, -.0009, -.0004, +.0000, +.0000, +.0000, +.0000, YAERO      1940
     2  +.0000, +.0009, +.0000, +.0000, +.0000,                         YAERO      1941
     A  +.0000, -.0033, -.0045, -.0015, -.0002, +.0000, +.0000, +.0000, YAERO      1942
     3  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1943
     3  +.0000, +.0000, +.0000, +.0000, +.0000,                         YAERO      1944
     A  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1945
     4  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1946
     4  +.0000, +.0000, +.0000, +.0000, +.0000/                         YAERO      1947
      DATA(SFTPHI0(I),I=85,168)/                                        YAERO      1948
     B  +.0000, -.0182, -.0262, -.0280, -.0266, -.0235, -.0200, -.0183, YAERO      1949
     1  -.0130, -.0103, -.0085, -.0070, -.0062, -.0055, -.0050, -.0046, YAERO      1950
     1  -.0045, -.0045, -.0045, -.0045, -.0045,                         YAERO      1951
     B  +.0000, -.0100, -.0155, -.0170, -.0113, -.0048, -.0010, +.0015, YAERO      1952
     2  +.0035, +.0050, +.0063, +.0075, +.0084, +.0092, +.0097, +.0102, YAERO      1953
     2  +.0104, +.0105, +.0105, +.0105, +.0105,                         YAERO      1954
     B  +.0000, -.0033, -.0014, +.0011, +.0030, +.0042, +.0051, +.0058, YAERO      1955
     3  +.0064, +.0068, +.0070, +.0070, +.0070, +.0070, +.0070, +.0070, YAERO      1956
     3  +.0070, +.0070, +.0070, +.0070, +.0070, +.0000, +.0000, +.0000, YAERO      1957
     B  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1958
     B  +.0000, +.0000, +.0000, +.0000, +.0000,                         YAERO      1959
     B  +.0000, +.0000, +.0000, +.0000, +.0000/                         YAERO      1960
      DATA(SFTPHI0(I),I=169,252)/                                       YAERO      1961
     C  +.0000, -.0197, -.0275, -.0280, -.0255, -.0210, -.0170, -.0147, YAERO      1962
     1  -.0130, -.0120, -.0110, -.0104, -.0096, -.0093, -.0090, -.0088, YAERO      1963
     1  -.0088, -.0088, -.0088, -.0088, -.0088,                         YAERO      1964
     C  +.0000, -.0055, -.0088, -.0095, -.0055, +.0035, +.0065, +.0075, YAERO      1965
     2  +.0063, +.0052, +.0040, +.0024, +.0009, -.0005, -.0014, -.0015, YAERO      1966
     2  -.0015, -.0015, -.0015, -.0015, -.0015,                         YAERO      1967
     C  +.0000, +.0042, +.0068, +.0082, +.0090, +.0096, +.0097, +.0092, YAERO      1968
     3  +.0076, +.0025, -.0007, -.0010, -.0010, -.0010, -.0010, -.0010, YAERO      1969
     3  -.0010, -.0013, -.0010, -.0010, -.0010,                         YAERO      1970
     C  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1971
     4  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1972
     4  +.0000, +.0000, +.0000, +.0000, +.0000/                         YAERO      1973
      DATA(SFTPHI0(I),I=253,336)/                                       YAERO      1974
     D  +.0000, -.0175, -.0245, -.0245, -.0210, -.0165, -.0135, -.0123, YAERO      1975
     1  -.0098, -.0069, -.0095, -.0085, -.0085, -.0085, -.0085, -.0085, YAERO      1976
     1  -.0085, -.0085, -.0095, -.0085, -.0085,                         YAERO      1977
     D  +.0000, -.0070, -.0035, -.0035, +.0004, +.0075, +.0110, +.0110, YAERO      1978
     2  +.0075, +.0025, +.0005, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1979
     2  +.0000, +.0000, +.0030, +.0000, +.0000,                         YAERO      1980
     D  +.0000, +.0045, +.0093, +.0105, +.0115, +.0117, +.0115, +.0103, YAERO      1981
     3  +.0070, +.0010, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1982
     3  +.0000, +.0000, +.0000, +.0000, +.0000,                         YAERO      1983
     D  +.0000, +.0000, +.0030, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1984
     D  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1985
     D  +.0000, +.0000, +.0000, +.0000, +.0000/                         YAERO      1986
      DATA(SFTPHI0(I),I=337,420)/                                       YAERO      1987
     E  +.0000, -.0147, -.0200, -.0200, -.0175, -.0130, -.0106, -.0089, YAERO      1988
     1  -.0078, -.0075, -.0075, -.0075, -.0075, -.0075, -.0075, -.0075, YAERO      1989
     1  -.0075, -.0075, -.0075, -.0075, -.0075,                         YAERO      1990
     E  +.0000, -.0012, -.0015, -.0012, +.0015, +.0080, +.0104, +.0092, YAERO      1991
     2  +.0054, +.0015, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1992
     2  +.0000, +.0000, +.0000, +.0000, +.0000,                         YAERO      1993
     E  +.0000, +.0058, +.0078, +.0090, +.0098, +.0099, +.0093, +.0077, YAERO      1994
     3  +.0045, +.0010, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      1995
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     3   +.0000, +.0000, +.0000, +.0000, +.0000,                             YAERO    1996
     E   +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000,     YAERO    1997
     4   +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000,     YAERO    1998
     4   +.0000, +.0000, +.0000, +.0000, +.0000/                             YAERO    1999
*                                                                            YAERO    2000
* (DELTA SF/T)BIAS WITH NOZZLES = 60 (DEG) AS A FUNCTION OF :                YAERO    2001
*                                                                            YAERO    2002
*   BETA     - 0 TO 30, 2 DEGREE STEPS                                       YAERO    2003
*   ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                                      YAERO    2004
*   VELOCITY - .05(A), .035(B)                                               YAERO    2005
*                                                                            YAERO    2006
      DATA(SFTB60U(I),I=1,96)/                                               YAERO    2007
     A   +.0000, -.0007, -.0010, -.0013, -.0014, -.0014, -.0012, -.0011,     YAERO    2008
     1   -.0011, -.0011, -.0011, -.0012, -.0013, -.0014, -.0015, -.0015,     YAERO    2009
     A   +.0000, -.0055, -.0093, -.0099, -.0108, -.0113, -.0114, -.0112,     YAERO    2010
     2   -.0109, -.0101, -.0093, -.0083, -.0072, -.0058, -.0045, -.0030,     YAERO    2011
     A   +.0000, -.0053, -.0066, -.0075, -.0079, -.0080, -.0081, -.0081,     YAERO    2012
     3   -.0080, -.0079, -.0076, -.0074, -.0071, -.0068, -.0064, -.0060,     YAERO    2013
     B   +.0000, -.0009, -.0015, -.0019, -.0020, -.0020, -.0019, -.0018,     YAERO    2014
     1   -.0017, -.0016, -.0015, -.0016, -.0017, -.0018, -.0019, -.0020,     YAERO    2015
     B   +.0000, -.0053, -.0092, -.0114, -.0123, -.0127, -.0130, -.0131,     YAERO    2016
     2   -.0131, -.0130, -.0129, -.0128, -.0126, -.0124, -.0121, -.0120,     YAERO    2017
     B   +.0000, -.0075, -.0098, -.0107, -.0110, -.0108, -.0104, -.0100,     YAERO    2018
     3   -.0096, -.0090, -.0085, -.0080, -.0073, -.0066, -.0059, -.0054/     YAERO    2019
*                                                                            YAERO    2020
* (DELTA SF/T)BIAS WITH NOZZLES = 81 (DEG) AS A FUNCTION OF:                 YAERO    2021
*                                                                            YAERO    2022
*   BETA     - 0 TO 180, 10 DEGREE STEPS                                     YAERO    2023
*   ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                                      YAERO    2024
*   VELOCITY - .025(A), .051(B), .077(C), .096(D)                            YAERO    2025
*                                                                            YAERO    2026
      DATA(SFTB81U(I),I=1,57)/                                               YAERO    2027
     A   +.0000, +.0077, +.0126, +.0166, +.0197, +.0220, +.0235, +.0248,     YAERO    2028
     1   +.0255, +.0262, +.0265, +.0267, +.0266, +.0264, +.0255, +.0240,     YAERO    2029
     1   +.0210, +.0152, +.0000,                                             YAERO    2030
     A   +.0000, +.0045, +.0080, +.0112, +.0132, +.0146, +.0155, +.0163,     YAERO    2031
     2   +.0165, +.0170, +.0171, +.0170, +.0169, +.0165, +.0161, +.0155,     YAERO    2032
     2   +.0155, +.0100, +.0000,                                             YAERO    2033
     A   +.0000, +.0025, +.0032, +.0031, +.0025, +.0016, +.0006, -.0001,     YAERO    2034
     3   -.0007, -.0011, -.0015, -.0016, -.0018, -.0015, -.0011, -.0006,     YAERO    2035
     3   +.0003, +.0005, +.0000/                                             YAERO    2036
      DATA(SFTB81U(I),I=58,114)/                                             YAERO    2037
     B   +.0000, +.0118, +.0194, +.0240, +.0263, +.0278, +.0282, +.0285,     YAERO    2038
     1   +.0288, +.0290, +.0292, +.0292, +.0292, +.0290, +.0285, +.0275,     YAERO    2039
     1   +.0255, +.0200, +.0000,                                             YAERO    2040
     B   +.0000, +.0043, +.0060, +.0073, +.0084, +.0094, +.0098, +.0096,     YAERO    2041
     2   +.0090, +.0088, +.0085, +.0083, +.0085, +.0092, +.0099, +.0098,     YAERO    2042
     2   +.0089, +.0062, +.0000,                                             YAERO    2043
     B   +.0000, -.0033, -.0054, -.0068, -.0078, -.0084, -.0086, -.0088,     YAERO    2044
     3   -.0089, -.0090, -.0090, -.0090, -.0090, -.0090, -.0089, -.0085,     YAERO    2045
     3   -.0075, -.0051, +.0000/                                             YAERO    2046
      DATA(SFTB81U(I),I=115,171)/                                            YAERO    2047
     C   +.0000, +.0100, +.0170, +.0208, +.0230, +.0244, +.0246, +.0247,     YAERO    2048
     1   +.0245, +.0243, +.0241, +.0243, +.0245, +.0246, +.0245, +.0241,     YAERO    2049
     1   +.0220, +.0170, +.0000,                                             YAERO    2050
     C   +.0000, +.0017, +.0027, +.0030, +.0035, +.0040, +.0037, +.0035,     YAERO    2051
     2   +.0031, +.0029, +.0028, +.0030, +.0034, +.0037, +.0040, +.0040,     YAERO    2052
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SUBROUTINE AERODAT    74/175  OPT=2                    FTN 4.8+538        82/10/22. 15.12.40       PAGE    37

      2  +.0035, +.0024, +.0000,                                              YAFR0      2053
      C  +.0000, -.0045, -.0075, -.0094, -.0099, -.0102, -.0106, -.0111,      YAFR0      2054
      3  -.0114, -.0114, -.0114, -.0114, -.0114, -.0115, -.0113, -.0108,      YAFR0      2055
      3  -.0097, -.0079, +.0000/                                              YAFR0      2056
       DATA(SFTBH1U(I),I=172,228)/                                            YAFR0      2057
      0  +.0000, +.0085, +.0141, +.0177, +.0194, +.0206, +.0209, +.0209,      YAFR0      2058
      1  +.0206, +.0202, +.0200, +.0200, +.0205, +.0208, +.0209, +.0202,      YAFR0      2059
      1  +.0189, +.0150, +.0000,                                              YAFR0      2060
      0  +.0000, +.0006, +.0010, +.0015, +.0016, +.0016, +.0015, +.0012,      YAFR0      2061
      2  +.0010, +.0007, +.0006, +.0005, +.0006, +.0010, +.0013, +.0015,      YAFR0      2062
      2  +.0015, +.0012, +.0000,                                              YAFR0      2063
      0 +.0000, -.0050, -.0065, -.0077, -.0084, -.0090, -.0095, -.0096,       YAFR0      2064
      3  -.0097, -.0096, -.0096, -.0095, -.0097, -.0098, -.0095, -.0093,      YAFR0      2065
      3 -.0085, -.0064, 0./                                                   YAFR0      2066
*                                                                             YAFR0      2067
*     (DELTA RM/T*DELPHI AT NOZZLES 0 TO 60, VEL 0 TO .247  AS FUNCTION OF    YAFR0      2068
*                                                                             YAFR0      2069
*     PHI  - -10 TO 10 (DEG) IN 1 DEG STEPS                                   YAFR0      2070
*     BETA -  0(1) 10(2) 20(3) 30(4)                                          YAFR0      2071
*     ALT  -  1.2(A) 4.12(B) 7.05(C) 70.0(D)                                  YAFR0      2072
*                                                                             YAFR0      2073
       DATA (DRMP60U(I), I=1,126)  /                                          YAFR0      2074
      A -.080, -.034, -.072, -.060, -.050, -.042, -.038,                      YAFR0      2075
      1 -.042, -.034, -.019,  .000,  .020,  .035,  .042,                      YAFR0      2076
      1  .038,  .041,  .049,  .060,  .071,  .084,  .080,                      YAFR0      2077
      A -.127, -.122, -.106, -.092, -.082, -.078, -.074,                      YAFR0      2078
      2 -.063, -.040, -.018,  .000,  .013,  .020,  .024,                      YAFR0      2079
      2  .032,  .045,  .063,  .073,  .074,  .067,  .058,                      YAFR0      2080
      A -.132, -.129, -.117, -.098, -.086, -.079, -.076,                      YAFR0      2081
      3 -.065, -.039, -.018,  .000,  .015,  .020,  .021,                      YAFR0      2082
      3  .027,  .039,  .056,  .071,  .074,  .068,  .058,                      YAFR0      2083
      A -.142, -.125, -.107, -.091, -.074, -.059, -.045,                      YAFR0      2084
      4 -.032, -.020, -.009,  .003,  .006,  .012,  .022,                      YAFR0      2085
      4  .037,  .047,  .054,  .058,  .063,  .061,  .054,                      YAFR0      2086
      B -.013, -.019, -.020, -.021, -.022, -.022, -.022,                      YAFR0      2087
      1 -.022, -.020, -.014,  .000,  .008,  .018,  .034,                      YAFR0      2088
      1  .046,  .052,  .050,  .044,  .037,  .032,  .029,                      YAFR0      2089
      B -.041, -.040, -.039, -.038, -.037, -.035, -.029,                      YAFR0      2090
      2 -.020, -.012, -.005,  .000,  .002,  .004,  .001,                      YAFR0      2091
      2 -.003, -.005, -.007, -.008, -.008, -.009, -.009 /                     YAFR0      2092
       DATA (DRMP60U(I), I=127,252)  /                                        YAFR0      2093
      B -.039, -.035, -.032, -.029, -.026, -.023, -.018,                      YAFR0      2094
      3 -.014, -.009, -.004,  .000,  .002,  .004,  .004,                      YAFR0      2095
      3  .003, -.001, -.003, -.004, -.004, -.004, -.003,                      YAFR0      2096
      B -.044, -.049, -.047, -.045, -.042, -.038, -.031,                      YAFR0      2097
      4 -.022, -.015, -.007,  .000,  .006,  .013,  .019,                      YAFR0      2098
      4  .022,  .025,  .029,  .029,  .030,  .030,  .029,                      YAFR0      2099
      C -.003, -.005, -.007, -.009, -.012, -.014, -.017,                      YAFR0      2100
      1 -.021, -.025, -.020,  .000,  .020,  .025,  .021,                      YAFR0      2101
      1  .017,  .014,  .012,  .009,  .007,  .005,  .000,                      YAFR0      2102
      C -.004, -.004, -.003, -.003, -.002, -.002, -.002,                      YAFR0      2103
      2 -.002, -.001,  .001,  .000,  .000,  .001,  .001,                      YAFR0      2104
      2  .002,  .002,  .002,  .003,  .003,  .004,  .004,                      YAFR0      2105
      C -.007, -.007, -.006, -.006, -.005, -.005, -.004,                      YAFR0      2106
      3 -.003, -.002, -.001,  .000,  .001,  .002,  .004,                      YAFR0      2107
      3  .005,  .007,  .008,  .010,  .012,  .014,  .016,                      YAFR0      2108
      C -.020, -.020, -.020, -.020, -.020, -.020, -.019,                      YAFR0      2109
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     4 -.016, -.011, -.005,  .000,  .006,  .011,  .017,            YAERO     2110
     4  .022,  .028,  .033,  .039,  .044,  .046,  .047 /           YAERO     2111
      DATA (DRMPAOU(I), I=253,336)  /                              YAERO     2112
     0 -.005, -.004, -.004, -.003, -.003, -.002, -.002,            YAERO     2113
     1 -.002, -.001, -.001,  .000,  .000,  .001,  .001,            YAERO     2114
     1  .002,  .002,  .002,  .003,  .003,  .004,  .004,            YAERO     2115
     B -.003, -.003, -.002, -.002, -.002, -.002, -.001,            YAERO     2116
     2 -.001, -.001,  .000,  .000,  .000,  .000,  .001,            YAERO     2117
     2  .001,  .001,  .001,  .001,  .002,  .002,  .002,            YAERO     2118
     B -.014, -.013, -.012, -.011, -.009, -.008, -.006,            YAERO     2119
     3 -.005, -.004, -.002,  .000,  .001,  .003,  .005,            YAERO     2120
     3  .007,  .008,  .010,  .012,  .014,  .016,  .018,            YAERO     2121
     B -.043, -.039, -.034, -.030, -.025, -.021, -.017,            YAERO     2122
     4 -.012, -.008, -.004,  .000,  .004,  .008,  .012,            YAERO     2123
     4  .015,  .019,  .022,  .026,  .029,  .032,  .035 /           YAERO     2124
*                                                                  YAERO     2125
*  ROLLING MOMENT (PHI)BIAS FOR NOZZLES = 81 DEG  AS A FUNCTION OF :   YAERO     2126
*                                                                  YAERO     2127
*  BETA -  0 TO 180 IN 20 DEG STEPS                                YAERO     2128
*  ALT  -  1.2(1) 4.12(2) 7.05(3) 70.(4)                           YAERO     2129
*  VE   -  0(A)  .025(B) .05(C)                                    YAERO     2130
*                                                                  YAERO     2131
      DATA (RM2B81U(I), I=1,120)  /                                YAERO     2132
     A  10 * 0.00,                                                 YAERO     2133
     2  10 * 0.00,                                                 YAERO     2134
     3  10 * 0.00,                                                 YAERO     2135
     4  10 * 0.00,                                                 YAERO     2136
     B 0.0, -0.15, -0.33, -0.49, -0.66, -0.75, -0.68, -0.50, -0.28, 0.,  YAERO     2137
     2 0.0, -0.71, -1.41, -2.12, -2.72, -2.75, -2.40, -1.78, -0.97, 0.,  YAERO     2138
     3 0.0, -1.25, -2.48, -3.73, -4.15, -3.93, -3.35, -2.45, -1.31, 0.,  YAERO     2139
     4 0.0,  0.00,  0.00,  0.00,  0.00,  0.00,  0.00,  0.00,  0.00, 0.,  YAERO     2140
     C 0.0, -0.96, -1.93, -2.90, -3.53, -3.44, -2.95, -2.19, -1.18, 0.,  YAERO     2141
     2 0.0, -1.66, -3.34, -4.61, -4.71, -4.32, -3.60, -2.60, -1.38, 0.,  YAERO     2142
     3 0.0, -2.33, -4.56, -5.25, -5.08, -4.55, -3.70, -2.65, -1.40, 0.,  YAERO     2143
     4 0.0,  0.00,  0.00,  0.00,  0.00,  0.00,  0.00,  0.00,  0.00, 0./  YAERO     2144
*                                                                  YAERO     2145
*  (DELTA RM/T*DE)BIAS FOR NOZZLES = 81 DEG  AS A FUNCTION OF :    YAERO     2146
*                                                                  YAERO     2147
*  BETA - 0 TO 180(DEG) IN 20 DEG STEPS                            YAERO     2148
*  ALT  - 1.2(1) 4.12(2) 7.05(3) 70.0(4)                           YAERO     2149
*  VE   - .025(A),  .05(B)                                         YAERO     2150
*                                                                  YAERO     2151
      DATA (DRM801U(I), I=1,80) /                                  YAERO     2152
     A   -.0000, -.0040, -.0060, -.0120, -.0162,                   YAERO     2153
     1   -.0188, -.0172, -.0130, -.0071, -.0000,                   YAERO     2154
     A   -.0000, -.0130, -.0261, -.0393, -.0508,                   YAERO     2155
     2   -.0510, -.0445, -.0331, -.0179, -.0000,                   YAERO     2156
     A   -.0000, -.0385, -.0515, -.0496, -.0495,                   YAERO     2157
     3   -.0505, -.0525, -.0513, -.0305, -.0000,                   YAERO     2158
     A   -.0000, -.0000, -.0000, -.0000, -.0000,                   YAERO     2159
     4   -.0000, -.0000, -.0000, -.0000, -.0000,                   YAERO     2160
     B   -.0000, -.0200, -.0422, -.0730, -.0928,                   YAERO     2161
     1   -.0900, -.0746, -.0512, -.0250, -.0000,                   YAERO     2162
     B   -.0000, -.0385, -.0730, -.0869, -.0880,                   YAERO     2163
     2   -.0842, -.0740, -.0568, -.0320, -.0000,                   YAERO     2164
     B   -.0000, -.0423, -.0569, -.0565, -.0568,                   YAERO     2165
     3   -.0569, -.0548, -.0467, -.0291, -.0000,                   YAERO     2166
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      8  -.0000, -.0000, -.0000, -.0000, -.0000,                               YAER0  2167
      4  -.0000, -.0000, -.0000, -.0000, -.0000 /                              YAER0  2168
*                                                                              YAER0  2169
*   (DELTA RM/T*DELPHI FOR NOZZLES = 81 DEG  AS A FUNCTION OF :                YAER0  2170
*                                                                              YAER0  2171
*   PHI(F) - 0 TO 15 IN 1 DEG STEPS                                            YAER0  2172
*   ALT    = 1.2(1), 4.12(2), 7.05(3), 70.0(4)                                 YAER0  2173
*   V(E)   - 0(A),   0.025(8),  0.0 (C)                                        YAER0  2174
*                                                                              YAER0  2175
      DATA (DRMPHI(I), I=1,128)  /                                             YAER0  2176
     A  .000, .026, .052, .075, .085, .091, .093, .093,                        YAER0  2177
     1  .092, .091, .088, .089, .088, .088, .088, .088,                        YAER0  2178
     A  .003, .025, .050, .059, .062, .061, .058, .047,                        YAER0  2179
     2  .033, .022, .012, .012, .012, .012, .012, .012,                        YAER0  2180
     A  .000, .027, .045, .034, .027, .022, .017, .013,                        YAER0  2181
     3  .010, .008, .007, .007, .007, .007, .007, .007,                        YAER0  2182
     A  .000, .000, .000, .000, .000, .000, .000, .000,                        YAER0  2183
     4  .000, .000, .000, .000, .000, .000, .000, .000,                        YAER0  2184
     8  .000, .025, .051, .075, .095, .105, .109, .112,                        YAER0  2185
     1  .114, .115, .115, .115, .115, .115, .115, .115,                        YAER0  2186
     8  .000, .013, .037, .055, .066, .070, .068, .059,                        YAER0  2187
     2  .043, .033, .030, .020, .010, .004, .001, .000,                        YAER0  2188
     8  .000, .034, .049, .053, .050, .046, .042, .039,                        YAER0  2189
     3  .035, .032, .030, .028, .027, .026, .027, .029,                        YAER0  2190
     8  .000, .001, .002, .002, .003, .004, .005, .006,                        YAER0  2191
     4  .006, .007, .008, .009, .010, .010, .011, .012 /                       YAER0  2192
      DATA (DRMPBI(I), I=129,192)  /                                           YAER0  2193
     C  .000, .021, .046, .075, .105, .119, .125, .130,                        YAER0  2194
     1  .134, .139, .142, .145, .149, .151, .154, .156,                        YAER0  2195
     C  .000, .024, .045, .064, .080, .090, .093, .087,                        YAER0  2196
     2  .068, .059, .051, .045, .041, .037, .034, .031,                        YAER0  2197
     C  .000, .022, .038, .050, .056, .057, .054, .051,                        YAER0  2198
     3  .047, .044, .041, .040, .033, .039, .039, .040,                        YAER0  2199
     C  .000, .002, .004, .005, .008, .010, .012, .013,                        YAER0  2200
     4  .015, .017, .019, .021, .023, .025, .026, .028 /                       YAER0  2201
*                                                                              YAER0  2202
*   PHI BIAS FOR YAWING MOMENT AT NOZZLES = 60 (DEG) AS A FUNCTION OF :        YAER0  2203
*                                                                              YAER0  2204
*   BETA     - 0 TO 30, 2 DEGREE STEPS                                         YAER0  2205
*   ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                                        YAER0  2206
*   VELOCITY - .35(A), .096(8)                                                 YAER0  2207
*                                                                              YAER0  2208
      DATA(PBYN60U(I),I=1,96)/                                                 YAER0  2209
     A  -0.00, -0.60, -1.02, -1.30, -1.45, -1.50, -1.50, -1.50, -1.50,         YAER0  2210
     1  -1.50, -1.50, -1.52, -1.60, -1.80, -2.00, -2.50,                       YAER0  2211
     A  -0.00, -0.60, -1.05, -1.44, -1.75, -2.00, -2.25, -2.50, -2.70,         YAER0  2212
     2  -2.45, -3.00, -3.23, -3.52, -3.90, -4.30, -4.80,                       YAER0  2213
     A  -3.00, -3.00, -0.00, -0.00, -0.00, -0.00, -0.00, -0.00, -0.00,         YAER0  2214
     3  -0.00, -0.00, -0.00, -0.00, -0.00, -0.00, -0.00,                       YAER0  2215
     8  -0.00, -0.20, -0.45, -0.65, -0.90, -1.10, -1.30, -1.50, -1.70,         YAER0  2216
     1  -1.90, -2.10, -2.30, -2.50, -2.70, -2.90, -3.10,                       YAER0  2217
     8  -0.00, -0.70, -1.10, -1.30, -1.40, -1.50, -1.50, -1.50, -1.50,         YAER0  2218
     2  -1.50, -1.50, -1.52, -1.60, -1.75, -2.00, -2.50,                       YAER0  2219
     8  -0.00, -0.00, -0.00, -0.00, -0.00, -0.00, -0.00, -0.00, -0.00,         YAER0  2220
     3  -0.00, -0.00, -0.00, -0.00, -0.00, -0.00, -0.00/                       YAER0  2221
*                                                                              YAER0  2222
*   PHI BIAS FOR YAWING MOMENT AT NOZZLES = 81 (DEG) AS A FUNCTION OF :        YAER0  2223
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      *                                                                 YAERO
      *   BETA       - 0 TO 180                                         YAERO
      *   ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                           YAERO
      *   VELOCITY - .025(A), .050(B)                                   YAERO
      *                                                                 YAERO
            DATA(PBYMB10(I),I=1,114)/                                   YAERO
          A   +0.00, +0.64, +0.90, +1.00, +0.99, +0.95, +0.92, +0.90, +0.84, YAERO
          1   +0.79, +0.72, +0.65, +0.58, +0.49, +0.40, +0.30, +.20, +.10,+.0,YAERO
          A   +0.00, +0.59, +0.75, +0.85, +0.85, +0.79, +0.65, +0.50, +0.40,  YAERO
          2   +0.32, +0.25, +0.20, +0.13, +0.10, +0.08, +0.05, +.02, +.01,+.0,YAERO
          A   +0.00, -0.20, -0.52, -1.00, -1.60, -2.25, -2.60, -2.45, -2.30,  YAERO
          3   -2.12, -1.90, -1.70, -1.50, -1.27, -1.05, -0.78, -.52, -.25,+.0,YAERO
          B   +0.00, +0.30, +0.48, +0.50, +0.50, +0.50, +0.50, +0.48, +0.45,  YAERO
          1   +0.42, +0.40, +0.38, +0.32, +0.29, +0.23, +0.19, +0.13,+.08,+.0,YAERO
          B   +0.00, +0.40, +0.58, -0.05, -1.10, -1.43, -1.37, -1.28, -1.20,  YAERO
          2   -1.10, -0.99, -0.88, -0.79, -0.66, -0.55, -0.40, -0.28,-.14,+.0,YAERO
          B   +0.00, -1.83, -3.45, -4.84, -6.03, -5.96, -5.48, -5.03, -4.58,  YAERO
          3   -4.12, -3.68, -3.20, -2.75, -2.30, -1.83, -1.35, -0.90,-.45,+.0/YAERO
      *                                                                 YAERO
      *   (DELTA YM/IDE) PHI E AT NOZZLES = 60 (DEG) AS A FUNCTION OF :  YAERO
      *                                                                 YAERO
      *   (PHI)E     - 0 TO 15                                          YAERO
      *   ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                           YAERO
      *   VELOCITY - .05(A), .096(B)                                    YAERO
      *                                                                 YAERO
            DATA(YMPE60U(I),I=1,96)/                                    YAERO
          A   +.000, +.026, +.054, +.080, +.108, +.127, +.139, +.141, +.133,  YAERO
          1   +.104, +.067, +.030, -.037, -.043, -.080, -.116,           YAERO
          A   +.000, -.028, -.018, +.029, +.081, +.134, +.151, +.137, +.121,  YAERO
          2   +.104, +.087, +.070, +.052, +.035, +.018, +.000,           YAERO
          A   +.000, -.014, -.020, -.018, -.016, -.013, -.011, -.009, -.006,  YAERO
          3   -.004, -.002, +.001, +.003, +.005, +.007, +.010,           YAERO
          B   +.000,+.027,+.054, +.080, +.108, +.127, +.139, +.141, +.134,    YAERO
          1   +.103, +.066, +.030, -.007, -.044, -.081, -.119,           YAERO
          B   +.000, -.037, -.024, +.016, +.032, +.024, +.017, +.013, +.011,  YAERO
          2   +.008, +.007, +.007, +.008, +.010, +.013, +.019,           YAERO
          B   +.000, -.020, -.029, -.024, -.020, -.016, -.011, -.007, -.003,  YAERO
          3   +.002, +.006, +.011, +.015, +.019, +.024, +.028/           YAERO
      *                                                                 YAERO
      *   (DELTA YM/IDE)PHI E AT NOZZLES = 81 (DEG) AS A FUNCTION OF :   YAERO
      *                                                                 YAERO
      *   (PHI)E     - 0 TO 15                                          YAERO
      *   ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                           YAERO
      *   VELOCITY - .00(A), .025(B), .05(C), .077(D), .096(E)          YAERO
      *                                                                 YAERO
            DATA(YMPE81U(I),I=1,96)/                                    YAERO
          A   +.0000, -.0005, -.0008, -.0008, -.0005, +.0000, +.0007, +.0022, YAERO
          1   +.0043, +.0054, +.0055, +.0055, +.0055, +.0055, +.0055, +.0055, YAERO
          A   +.0000, +.0015, +.0035, +.0058, +.0087, +.0135, +.0140, +.0140, YAERO
          2   +.0140, +.0140, +.0140, +.0140, +.0140, +.0140, +.0140, +.0140, YAERO
          A   +.0000, +.0005, +.0017, +.0027, +.0023, +.0010, -.0005, -.0007, YAERO
          3   +.0003, +.0017, -.0003, -.0001, -.0003, -.0003, -.0003, -.0003, YAERO
          B   +.0000, +.0035, +.0069, +.0103, +.0137, +.0173, +.0207, +.0221, YAERO
          1   +.0193, +.0167, +.0145, +.0125, +.0105, +.0090, +.0073, +.0057, YAERO
          B   +.0000, +.0053, +.0090, +.0112, +.0120, +.0110, +.0090, +.0063, YAERO
          2   +.0031, +.0010, -.0005, -.0017, -.0025, -.0032, -.0036, -.0039, YAERO
          B   +.0000, +.0074, +.0090, +.0080, +.0040, -.0013, -.0036, -.0045, YAERO
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SUBROUTINE AERODAT    74/175  OPT=2                    FTN 4.[illegible]      [illegible]    PAGE   41

     3  -.0047, -.0045, -.0042, -.0039, -.0035, -.0033, -.0030, -.0027/ YAERO    2281
      DATA(YMPERT10(I),I=97,240)/                                        YAERO    2282
     C  +.0000, -.0004, +.0052, +.0130, +.0230, +.0357, +.0440, +.0450, YAERO    2283
     1  +.0173, +.0317, +.0279, +.0230, +.0190, +.0107, +.0075, +.0045, YAERO    2284
     C  +.0000, +.0095, +.0152, +.0185, +.0196, +.0182, +.0132, +.0000, YAERO    2285
     2  -.0048, -.0070, -.0090, -.0085, -.0085, -.0085, -.0085, -.0085, YAERO    2286
     C  +.0000, -.0057, -.0094, -.0100, -.0110, -.0115, -.0115, -.0114, YAERO    2287
     3  -.0111, -.0106, -.0099, -.0090, -.0080, -.0070, -.0057, -.0045, YAERO    2288
     D  +.0000, +.0065, +.0135, +.0204, +.0275, +.0342, +.0410, +.0427, YAERO    2289
     1  +.0387, +.0342, +.0300, +.0255, +.0210, +.0167, +.0123, +.0080, YAERO    2290
     D  +.0000, +.0080, +.0130, +.0157, +.0165, +.0150, +.0105, -.0015, YAERO    2291
     2  -.0053, -.0073, -.0085, -.0090, -.0090, -.0087, -.0078, -.0075, YAERO    2292
     D  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO    2293
     3  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO    2294
     E  +.0000, +.0055, +.0109, +.0163, +.0219, +.0273, +.0325, +.0340, YAERO    2295
     1  +.0305, +.0270, +.0232, +.0197, +.0160, +.0122, +.0087, +.0050, YAERO    2296
     E  +.0000, +.0055, +.0090, +.0113, +.0117, +.0107, +.0075, -.0010, YAERO    2297
     2  -.0050, -.0065, -.0073, -.0079, -.0078, -.0074, -.0067, -.0057, YAERO    2298
     E  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO    2299
     3  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000/ YAERO    2300
*                                                                       YAERO    2301
*    (DELTA YM/TDE)BIAS AT NOZZLES = 60 (DEG) AS A FUNCTION OF :        YAERO    2302
*                                                                       YAERO    2303
*    BETA     - 0 TO 30, 2 DEGREE STEPS                                 YAERO    2304
*    ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                                YAERO    2305
*    VELOCITY - .05(A), .096(B)                                         YAERO    2306
*                                                                       YAERO    2307
      DATA(YMBS60U(I),I=1,96)/                                          YAERO    2308
     A  +.000, +.018, +.027, +.035, +.038, +.040, +.040, +.040, +.040,  YAERO    2309
     1  +.040, +.040, +.040, +.043, +.048, +.056, +.067,                YAERO    2310
     A  +.000, -.019, -.027, -.028, -.025, -.018, -.009, +.000, +.009,  YAERO    2311
     2  +.018, +.027, +.040, +.056, +.078, +.100, +.124,                YAERO    2312
     A  +.000, +.000, +.000, +.000, +.000, +.000, +.000, +.000, +.000,  YAERO    2313
     3  +.000, +.000, +.000, +.000, +.000, +.000, +.000,                YAERO    2314
     B  +.000, +.015, +.027, +.035, +.039, +.040, +.040, +.040, +.040,  YAERO    2315
     1  +.040, +.040, +.041, +.043, +.049, +.057, +.068,                YAERO    2316
     B  +.000, -.011, -.021, -.030, -.035, -.037, -.037, -.035, -.032,  YAERO    2317
     2  -.027, -.021, -.014, -.004, +.006, +.014, +.019,                YAERO    2318
     B  +.000, +.000, +.000, +.000, +.000, +.000, +.000, +.000, +.000,  YAERO    2319
     3  +.000, +.000, +.000, +.000, +.000, +.000, +.000/                YAERO    2320
*                                                                       YAERO    2321
*    (DELTA YM/TDE)BIAS AT NOZZLES = 41 (DEG) AS A FUNCTION OF :        YAERO    2322
*                                                                       YAERO    2323
*    BETA     - 0 TO 180, 10 DEGREE STEPS                               YAERO    2324
*    ALTITUDE - 1.2(1), 4.12(2), 7.05(3)                                YAERO    2325
*    VELOCITY - .025(A),.05(B), .077(C), .096(D)                        YAERO    2326
*                                                                       YAERO    2327
      DATA(YMBS41U(I),I = 1,114)/                                       YAERO    2328
     A  +.0000, +.0020, +.0029, +.0033, +.0033, +.0032, +.0031, +.0030, YAERO    2329
     1  +.0028, +.0026, +.0023, +.0021, +.0018, +.0015, +.0013, +.0009, YAERO    2330
     1  +.0007, +.0003, +.0030,                                         YAERO    2331
     A  +.0000, +.0028, +.0040, +.0046, +.0047, +.0043, +.0032, +.0024, YAERO    2332
     2  +.0023, +.0019, +.0015, +.0013, +.0010, +.0008, +.0006, +.0003, YAERO    2333
     2  +.0002, +.0001, +.0000,                                         YAERO    2334
     A  +.0000, -.0025, -.0052, -.0073, -.0087, -.0090, -.0090, -.0090, YAERO    2335
     3  -.0090, -.0089, -.0088, -.0086, -.0083, -.0079, -.0074, -.0065, YAERO    2336
     3  -.0051, -.0029, +.0030,                                         YAERO    2337
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SUBROUTINE AERODAT    747175  OPT=2                        FTN 4.8+538       02/10/22. 15.12.40       PAGE    42

          8  +.0000, -.0012, -.0014, -.0014, -.0014, -.0014, -.0014, -.0014, YAERO      2338
          1  -.0014, -.0014, -.0014, -.0013, -.0012, -.0011, -.0010, -.0008, YAERO      2339
          1  -.0007, -.0004, +.0000,                                          YAERO      2340
          8  +.0000, +.0041, +.0060, +.0000, -.0102, -.0124, -.0118, -.0113, YAERO      2341
          2  -.0108, -.0102, -.0095, -.0087, -.0078, -.0068, -.0057, -.0045, YAERO      2342
          2  -.0033, -.0018, +.0000,                                          YAERO      2343
          8  +.0000, +.0080, +.0124, +.0114, +.0116, +.0116, +.0115, +.0114, YAERO      2344
          3  +.0113, +.0110, +.0107, +.0103, +.0097, +.0090, +.0080, +.0069, YAERO      2345
          3  +.0052, +.0030, +.0000/                                          YAERO      2346
           DATA(YMBSA10(I),I=115,228)/                                        YAERO      2347
          C  +.0000, +.0023, +.0033, +.0034, +.0034, +.0034, +.0034, +.0032, YAERO      2348
          1  +.0031, +.0023, +.0028, +.0025, +.0023, +.0019, +.0016, +.0013, YAERO      2349
          1  +.0009, +.0005, +.0000,                                          YAERO      2350
          C  +.0000, +.0037, +.0052, -.0006, -.0088, -.0105, -.0102, -.0098, YAERO      2351
          2  -.0093, -.0087, -.0082, -.0075, -.0067, -.0060, -.0050, -.0040, YAERO      2352
          2  -.0028, -.0015, +.0000,                                          YAERO      2353
          C  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      2354
          3  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      2355
          3  +.0000, +.0000, +.0000,                                          YAERO      2356
          0  +.0000, +.0018, +.0026, +.0027, +.0027, +.0027, +.0027, +.0026, YAERO      2357
          1  +.0025, +.0023, +.0022, +.0020, +.0018, +.0015, +.0012, +.0010, YAERO      2358
          1  +.0007, +.0004, +.0000,                                          YAERO      2359
          0  +.0000, +.0024, +.0033, -.0004, -.0058, -.0073, -.0071, -.0068, YAERO      2360
          2  -.0064, -.0060, -.0055, -.0050, -.0045, -.0039, -.0033, -.0026, YAERO      2361
          2  -.0018, -.0010, +.0000,                                          YAERO      2362
          0  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      2363
          3  +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, +.0000, YAERO      2364
          3  +.0000, +.0000, +.0000/                                          YAERO      2365
     *                                                                        YAERO      2366
     *     HIGH ALPHA PM BASELINE, ALPHA=-180,-100 IN 20 DEG INCR, 90 DEG,    YAERO      2367
     *     -80,-20 IN 20 DEG INCR,-10,0,,20,30,40,60,80,90 DEG,100,180 IN 20  YAERO      2368
     *     DEG INCR                                                           YAERO      2369
     *                                                                        YAERO      2370
           DATA HCMB1T/                                                       YAERO      2371
          .0.000,  0.330,  0.540,  0.660,  0.720,  0.720,  0.720,  0.670,     YAERO      2372
          .0.550,  0.250,  0.090, -0.075, -0.485, -0.550, -0.610, -0.670,     YAERO      2373
          .-.720, -0.720, -0.720, -0.670, -0.550, -0.330,  0.000/             YAERO      2374
     *                                                                        YAERO      2375
     *     BASELINE PM COEFFICIENT DATA, M=.50,.58,.65,.75,.80,.85,.90,.95,   YAERO      2376
     *     1.05, ALPHA=-4,24 IN 2 DEG INCR                                    YAERO      2377
     *                                                                        YAERO      2378
           DATA HCMB2T/                                                       YAERO      2379
          . .028,  .002, -.025, -.054, -.083, -.111, -.131, -.143, -.189,     YAERO      2380
          .-.224, -.242, -.291, -.327, -.367, -.405,                          YAERO      2381
          . .021, -.007, -.035, -.060, -.084, -.111, -.130, -.152, -.199,     YAERO      2382
          .-.250, -.272, -.313, -.352, -.390, -.430,                          YAERO      2383
          . .011, -.014, -.039, -.062, -.085, -.113, -.134, -.169, -.218,     YAERO      2384
          .-.256, -.283, -.315, -.358, -.400, -.445,                          YAERO      2385
          . .013, -.009, -.037, -.063, -.089, -.110, -.131, -.187, -.222,     YAERO      2386
          .-.265, -.333, -.353, -.392, -.435, -.475,                          YAERO      2387
          . .007, -.021, -.043, -.075, -.100, -.124, -.142, -.176, -.241,     YAERO      2388
          .-.278, -.295, -.342, -.377, -.415, -.452,                          YAERO      2389
          .-.030, -.041, -.052, -.076, -.099, -.150, -.168, -.205, -.233,     YAERO      2390
          .-.264, -.313, -.373, -.415, -.454, -.485,                          YAERO      2391
          . .004, -.034, -.072, -.103, -.133, -.119, -.130, -.144, -.207,     YAERO      2392
          .-.245, -.351, -.404, -.455, -.500, -.545,                          YAERO      2393
          . .038, -.002, -.034, -.068, -.102, -.114, -.143, -.148, -.182,     YAERO      2394
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     .-.257, -.320, -.372, -.422, -.468, -.510,                      YAERO  2395
     . .197,  .159,  .121,  .084,  .047, -.021, -.090, -.157, -.220, YAERO  2396
     .-.303, -.378, -.453, -.528, -.603, -.679/                      YAERO  2397
*                                                                    YAERO  2398
*     PITCHING MOMENT INCREMENT DUE TO STABILATOR DEFLECTION.        YAERO  2399
*        DH=-13.5,13.5 IN 3 DEG INCR,ALPHA=-4,24 IN 4 DEG INCR, M=.50, YAERO  2400
*        .65,.80,.85,.90,.95,1.05,1.20                               YAERO  2401
*                                                                    YAERO  2402
      DATA(HCMSTT(I),I=1,80)/                                        YAERO  2403
     . .285,  .255,  .190,  .130,  .065, 0.000, -.064, -.125, -.190, YAERO  2404
     .-.240,  .300,  .255,  .194,  .130,  .065, 0.000, -.065, -.130, YAERO  2405
     .-.190, -.235,  .300,  .255,  .190,  .125,  .065, 0.000, -.065, YAERO  2406
     .-.130, -.183, -.225,  .300,  .255,  .190,  .127,  .065, 0.000, YAERO  2407
     .-.065, -.130, -.180, -.220,  .300,  .254,  .190,  .127,  .065, YAERO  2408
     .0.000, -.060, -.116, -.166, -.205,  .300,  .242,  .180,  .120, YAERO  2409
     . .050, 0.000, -.056, -.106, -.146, -.170,  .275,  .220,  .165, YAERO  2410
     . .113,  .057, 0.000, -.050, -.087, -.106, -.115,  .208,  .164, YAERO  2411
     . .122,  .080,  .038, 0.000, -.030, -.048, -.047, -.015/        YAERO  2412
      DATA(HCMSTT(I),I=81,160)/                                      YAERO  2413
     . .330,  .280,  .212,  .140,  .074, 0.000, -.066, -.137, -.205, YAERO  2414
     .-.257,  .330,  .280,  .215,  .145,  .075, 0.000, -.070, -.140, YAERO  2415
     .-.206, -.250,  .333,  .280,  .215,  .144,  .070, 0.000, -.075, YAERO  2416
     .-.150, -.208, -.253,  .340,  .280,  .214,  .142,  .074, 0.000, YAERO  2417
     .-.067, -.139, -.206, -.235,  .340,  .282,  .215,  .145,  .073, YAERO  2418
     .0.000, -.070, -.130, -.180, -.220,  .340,  .275,  .205,  .139, YAERO  2419
     . .070, 0.000, -.063, -.118, -.159, -.179,  .314,  .254,  .190, YAERO  2420
     . .128,  .065, 0.000, -.054, -.090, -.112, -.115,  .252,  .203, YAERO  2421
     . .152,  .102,  .052, 0.000, -.032, -.048, -.047, -.005/        YAERO  2422
      DATA(HCMSTT(I),I=161,240)/                                     YAERO  2423
     . .350,  .295,  .230,  .156,  .078, 0.000, -.075, -.150, -.219, YAERO  2424
     .-.265,  .352,  .298,  .230,  .157,  .080, 0.000, -.073, -.148, YAERO  2425
     .-.215, -.265,  .330,  .298,  .233,  .157,  .080, 0.000, -.075, YAERO  2426
     .-.150, -.217, -.275,  .350,  .298,  .232,  .158,  .080, 0.000, YAERO  2427
     .-.075, -.150, -.219, -.265,  .330,  .273,  .208,  .142,  .073, YAERO  2428
     .0.000, -.070, -.137, -.196, -.240,  .306,  .252,  .189,  .125, YAERO  2429
     . .064, 0.003, -.062, -.126, -.173, -.195,  .282,  .225,  .170, YAERO  2430
     . .113,  .058, 0.000, -.046, -.074, -.085, -.087,  .275,  .220, YAERO  2431
     . .165,  .110,  .054, 0.000, -.044, -.067, -.065, 0.000/        YAERO  2432
      DATA(HCMSTT(I),I=241,320)/                                     YAERO  2433
     . .360,  .304,  .234,  .155,  .080, 0.000, -.080, -.152, -.220, YAERO  2434
     .-.274,  .360,  .304,  .235,  .160,  .084, 0.000, -.075, -.150, YAERO  2435
     .-.220, -.275,  .360,  .305,  .235,  .160,  .082, 0.000, -.075, YAERO  2436
     .-.153, -.223, -.275,  .360,  .299,  .232,  .156,  .080, 0.000, YAERO  2437
     .-.080, -.150, -.214, -.259,  .350,  .293,  .220,  .150,  .080, YAERO  2438
     .0.000, -.070, -.135, -.185, -.220,  .325,  .263,  .200,  .130, YAERO  2439
     . .068, 0.000, -.060, -.110, -.145, -.163,  .300,  .240,  .192, YAERO  2440
     . .123,  .065, 0.000, -.048, -.080, -.099, -.087,  .295,  .240, YAERO  2441
     . .192,  .122,  .064, 0.000, -.040, -.060, -.046, 0.000/        YAERO  2442
      DATA(HCMSTT(I),I=321,400)/                                     YAERO  2443
     . .352,  .292,  .233,  .160,  .084, 0.000, -.085, -.170, -.250, YAERO  2444
     .-.326,  .363,  .305,  .237,  .164,  .085, 0.000, -.087, -.170, YAERO  2445
     .-.252, -.326,  .380,  .312,  .240,  .160,  .084, 0.000, -.089, YAERO  2446
     .-.176, -.250, -.315,  .380,  .314,  .240,  .165,  .085, 0.000, YAERO  2447
     .-.080, -.157, -.223, -.230,  .370,  .304,  .232,  .159,  .082, YAERO  2448
     .0.000, -.075, -.143, -.198, -.233,  .330,  .275,  .213,  .145, YAERO  2449
     . .076, 0.000, -.064, -.112, -.142, -.156,  .312,  .257,  .197, YAERO  2450
     . .135,  .079, 0.000, -.052, -.086, -.100, -.082,  .310,  .255, YAERO  2451
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     .  .195,   .135,   .070, 0.000, -.050, -.073, -.065, -.015/          YAERO    2452
      DATA(HCMSIT(I),I=401,480)/                                          YAERO    2453
     .  .320,   .275,   .223,   .159,   .084, 0.000, -.095, -.192, -.286, YAERO    2454
     .-.330,   .345,   .300,   .242,   .175,   .094, 0.000, -.094, -.195, YAERO    2455
     .-.287, -.365,   .357,   .335,   .245,   .173,   .095, 0.000, -.102, YAERO    2456
     .-.196, -.286, -.350,   .350,   .304,   .244,   .173,   .092, 0.000, YAERO    2457
     .-.094, -.185, -.270, -.345,   .334,   .285,   .227,   .158,   .083, YAERO    2458
     .0.000, -.083, -.162, -.227, -.275,   .335,   .284,   .223,   .155, YAERO    2459
     .  .080, 0.000, -.075, -.140, -.185, -.212,   .325,   .270,   .210, YAERO    2460
     .  .147,   .075, 0.000, -.060, -.102, -.134, -.150,   .317,   .262, YAERO    2461
     .  .200,   .135,   .067, 0.000, -.056, -.090, -.100, -.070/          YAERO    2462
      DATA(HCMSIT(I),I=481,560)/                                          YAERO    2463
     .  .300,   .260,   .208,   .144,   .073, 0.000, -.085, -.174, -.255, YAERO    2464
     .-.330,   .330,   .285,   .225,   .157,   .085, 0.000, -.082, -.165, YAERO    2465
     .-.245, -.310,   .336,   .285,   .225,   .156,   .080, 0.000, -.085, YAERO    2466
     .-.166, -.239, -.296,   .300,   .256,   .202,   .140,   .073, 0.000, YAERO    2467
     .-.090, -.157, -.220, -.275,   .310,   .260,   .200,   .140,   .073, YAERO    2468
     .0.000, -.072, -.135, -.185, -.220,   .295,   .248,   .195,   .135, YAERO    2469
     .  .070, 0.000, -.055, -.100, -.128, -.140,   .290,   .248,   .195, YAERO    2470
     .  .139,   .070, 0.000, -.050, -.085, -.090, -.060,   .270,   .230, YAERO    2471
     .  .183,   .125,   .065, 0.000, -.030, -.039, -.029,   .022/          YAERO    2472
      DATA(HCMSIT(I),I=561,640)/                                          YAERO    2473
     .  .275,   .242,   .195,   .138,   .070, 0.000, -.070, -.140, -.205, YAERO    2474
     .-.265,   .285,   .249,   .200,   .140,   .075, 0.000, -.070, -.140, YAERO    2475
     .-.203, -.260,   .293,   .248,   .195,   .134,   .070, 0.000, -.070, YAERO    2476
     .-.186, -.192, -.235,   .300,   .250,   .194,   .133,   .069, 0.000, YAERO    2477
     .-.070, -.134, -.185, -.220,   .285,   .235,   .176,   .123,   .065, YAERO    2478
     .0.000, -.054, -.098, -.130, -.140,   .255,   .205,   .157,   .106, YAERO    2479
     .  .053, 0.000, -.046, -.072, -.078, -.060,   .235,   .192,   .147, YAERO    2480
     .  .100,   .052, 0.000, -.035, -.052, -.045, 0.000,   .230,   .187, YAERO    2481
     .  .143,   .096,   .049, 0.000, -.022, -.004,   .038,   .098/          YAERO    2482
*                                                                         YAERO    2483
*     PITCHING MOMENT INCREMENT DUE TO FLAP DEFLECTION.                   YAERO    2484
*     DF=0,25 IN 5 DEG INCR,ALPHA=-4,24 IN 2 DEG INCR,MACH=.60,.50,.65,   YAERO    2485
*     .75,.80,.85,.90,.95                                                 YAERO    2486
*                                                                         YAERO    2487
      DATA(HCMFT(I),I=1,75)/                                              YAERO    2488
     .-.013, -.012, -.009, -.006, 0.000, 0.000, -.007, -.007, 0.000,      YAERO    2489
     .-.005, -.010, -.018, -.022, -.024, -.024,                           YAERO    2490
     .-.016, -.016, -.015, -.010, -.012, -.010, -.010, -.007,   .003,     YAERO    2491
     .-.005, -.017, -.019, -.032, -.039, -.037,                           YAERO    2492
     .-.029, -.025, -.020, -.013, 0.000, 0.000, 0.000,   .003,   .008,    YAERO    2493
     .-.005, -.025, -.030, -.040, -.040, -.039,                           YAERO    2494
     .-.059, -.045, -.032, -.017, 0.000,   .005,   .008,   .010,   .011,  YAERO    2495
     .  .010, -.031, -.035, -.044, -.044, -.044,                          YAERO    2496
     .-.086, -.065, -.043, -.020, 0.009,   .010,   .015,   .017,   .014,  YAERO    2497
     .-.015, -.037, -.040, -.048, -.048, -.048/                           YAERO    2498
      DATA(HCMFT(I),I=76,150)/                                            YAERO    2499
     .-.010, -.003, -.008, -.008, -.006, -.005, -.003, -.003, -.001,      YAERO    2500
     .-.009, -.014, -.021, -.023, -.021, -.022,                           YAERO    2501
     .-.019, -.015, -.013, -.010, -.014, -.009, -.005, -.003, 0.000,      YAERO    2502
     .-.008, -.025, -.036, -.041, -.039, -.033,                           YAERO    2503
     .-.027, -.026, -.020, -.016, -.009, -.005, 0.000,   .001,   .001,    YAERO    2504
     .-.012, -.035, -.043, -.047, -.045, -.041,                           YAERO    2505
     .-.045, -.033, -.028, -.017, -.005,   .001,   .007,   .007, -.002,   YAERO    2506
     .-.010, -.040, -.047, -.049, -.047, -.043,                           YAERO    2507
     .-.061, -.052, -.034, -.017, -.003,   .006,   .013,   .012, -.004,   YAERO    2508
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     .-.026, -.044, -.050, -.051, -.049, -.046/                      YAERO     2509
      DATA(HCMFT(I),I=151,225)/                                      YAERO     2510
     .-.007, -.007, -.003, -.010, -.011, -.009, 0.000, 0.000, -.001, YAERO     2511
     .-.013, -.017, -.023, -.023, -.019, -.020,                      YAERO     2512
     .-.014, -.014, -.012, -.010, -.015, -.009, 0.000, 0.000, -.003, YAERO     2513
     .-.011, -.032, -.051, -.049, -.039, -.030,                      YAERO     2514
     .-.026, -.026, -.020, -.018, -.015, -.009, 0.000, 0.000, -.005, YAERO     2515
     .-.018, -.043, -.055, -.054, -.049, -.043,                      YAERO     2516
     .-.033, -.033, -.024, -.017, -.009, -.003,  .006,  .004, -.013, YAERO     2517
     .-.027, -.347, -.057, -.054, -.049, -.043,                      YAERO     2518
     .-.040, -.040, -.027, -.015, -.003,  .003,  .011,  .007, -.020, YAERO     2519
     .-.036, -.051, -.059, -.054, -.049, -.043/                      YAERO     2520
      DATA(HCMFT(I),I=226,300)/                                      YAERO     2521
     .-.012, -.012, -.014, -.015, -.014, -.018, -.015, -.011, -.008, YAERO     2522
     .-.013, -.020, -.030, -.035, -.034, -.034,                      YAERO     2523
     .-.030, -.030, -.017, -.010, -.012, -.020, -.022, -.017, -.016, YAERO     2524
     .-.020, -.032, -.044, -.050, -.046, -.043,                      YAERO     2525
     .-.027, -.027, -.020, -.017, -.015, -.020, -.029, -.027, -.028, YAERO     2526
     .-.031, -.043, -.052, -.056, -.054, -.052,                      YAERO     2527
     .-.036, -.036, -.025, -.020, -.016, -.020, -.029, -.033, -.039, YAERO     2528
     .-.043, -.052, -.058, -.063, -.061, -.059,                      YAERO     2529
     .-.044, -.044, -.030, -.022, -.016, -.019, -.028, -.038, -.050, YAERO     2530
     .-.054, -.060, -.065, -.069, -.068, -.066/                      YAERO     2531
      DATA(HCMFT(I),I=301,375)/                                      YAERO     2532
     .-.015, -.015, -.017, -.017, -.015, -.022, -.023, -.016, -.011, YAERO     2533
     .-.013, -.021, -.034, -.041, -.041, -.041,                      YAERO     2534
     .-.038, -.038, -.020, -.010, -.011, -.025, -.033, -.025, -.023, YAERO     2535
     .-.025, -.032, -.043, -.050, -.050, -.050,                      YAERO     2536
     .-.029, -.028, -.020, -.017, -.015, -.025, -.044, -.041, -.039, YAERO     2537
     .-.038, -.043, -.050, -.057, -.057, -.057,                      YAERO     2538
     .-.037, -.037, -.026, -.021, -.019, -.022, -.046, -.051, -.052, YAERO     2539
     .-.051, -.054, -.053, -.067, -.067, -.067,                      YAERO     2540
     .-.046, -.046, -.031, -.025, -.023, -.030, -.047, -.060, -.065, YAERO     2541
     .-.063, -.064, -.068, -.077, -.077, -.077/                      YAERO     2542
      DATA(HCMFT(I),I=376,450)/                                      YAERO     2543
     .0.000, 0.000, -.012, -.012, -.023, -.027, -.022, 0.000, -.007, YAERO     2544
     .-.015, -.017, -.017, -.017, -.017, -.017,                      YAERO     2545
     .0.000, 0.000, -.012, -.012, -.031, -.034, -.028, -.010, -.014, YAERO     2546
     .-.037, -.039, -.039, -.039, -.039, -.039,                      YAERO     2547
     .-.014, -.014, -.024, -.023, -.039, -.039, -.044, -.030, -.035, YAERO     2548
     .-.049, -.050, -.050, -.050, -.050, -.050,                      YAERO     2549
     .-.025, -.025, -.033, -.031, -.046, -.047, -.050, -.045, -.043, YAERO     2550
     .-.055, -.056, -.055, -.056, -.056, -.054,                      YAERO     2551
     .-.035, -.035, -.042, -.039, -.053, -.055, -.055, -.060, -.050, YAERO     2552
     .-.060, -.062, -.062, -.062, -.062, -.062/                      YAERO     2553
      DATA(HCMFT(I),I=451,525)/                                      YAERO     2554
     . .012,  .012,  .023,  .022,  .004, -.031, -.045, -.046, -.020, YAERO     2555
     .-.009, -.005, -.005, -.055, -.055, -.055,                      YAERO     2556
     .0.000, 0.000,  .008, -.001, -.009, -.054, -.064, -.056, -.040, YAERO     2557
     .-.027, -.013, -.015, -.015, -.015, -.015,                      YAERO     2558
     . .012, 0.000, -.013, -.020, -.033, -.080, -.090, -.073, -.065, YAERO     2559
     .-.050, -.038, -.035, -.035, -.035, -.035,                      YAERO     2560
     .-.013, -.013, -.040, -.041, -.073, -.066, -.054, -.039, -.034, YAERO     2561
     .-.053, -.058, -.353, -.045, -.045, -.045,                      YAERO     2562
     .-.024, -.024, -.053, -.053, -.083, -.080, -.063, -.060, -.035, YAERO     2563
     .-.057, -.057, -.056, -.047, -.047, -.047/                      YAERO     2564
      DATA(HCMFT(I),I=526,600)/                                      YAERO     2565
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     . .020,  .021,  .020,  .011, -.003, -.027, -.047, -.066, -.056,    YAERO    2566
     .-.045, -.037, -.032, -.026, -.026, -.026,                          YAERO    2567
     .0.000, 0.000,  .028,  .010,  .013, -.075, -.100, -.102, -.066,    YAERO    2568
     .-.017,  .001,  .009,  .009,  .009,  .009,                          YAERO    2569
     . .038,  .014, -.002, -.017, -.027, -.121, -.136, -.110, -.095,    YAERO    2570
     .-.051, -.026, -.020, -.020, -.020, -.020,                          YAERO    2571
     .-.001, -.001, -.047, -.051, -.100, -.085, -.058, -.033, -.025,    YAERO    2572
     .-.063, -.063, -.050, -.034, -.034, -.034,                          YAERO    2573
     .-.013, -.013, -.064, -.067, -.113, -.105, -.071, -.060, -.020,    YAERO    2574
     .-.054, -.058, -.050, -.032, -.032, -.032/                          YAERO    2575
*                                                                        YAERO    2576
*     BASELINE LIFT COEFFICIENT,  ALPHA=-180,-120 IN 20 DEG INCR;       YAERO    2577
*     -90 DEG;-80,-20 IN 20 DEG INCR;-10,30,40,60,80,90 DEG;100,180 IN  YAERO    2578
*     20 DEG INCR                                                       YAERO    2579
*                                                                        YAERO    2580
      DATA HCL1T/                                                        YAERO    2581
     .0.000, 1.150, 1.160, 0.797, 0.000, -0.282, -0.797, -1.160,        YAERO    2582
     .-1.141, -0.621, 1.232, 1.160, 0.797, 0.282, 0.000, -0.282,        YAERO    2583
     .-0.797, -1.160, -1.150, 0.000/                                     YAERO    2584
*                                                                        YAERO    2585
*     BASELINE LIFT COEFFICIENT DATA,                                   YAERO    2586
*     M=.50,.58,.65,.75,.80,.85,.93,.95,1.05;ALPHA=-4,24 IN 2 DEG INCR  YAERO    2587
*                                                                        YAERO    2588
      DATA HCL2T/                                                        YAERO    2589
     .-.330, -.188, -.047,  .102,  .252,  .392,  .543,  .674,  .795,    YAERO    2590
     . .907,  .948, 1.023, 1.075, 1.110, 1.160,                          YAERO    2591
     .-.338, -.188, -.033,  .110,  .259,  .415,  .568,  .692,  .812,    YAERO    2592
     . .905,  .940,  .998, 1.060, 1.105, 1.140,                          YAERO    2593
     .-.296, -.160, -.033,  .125,  .282,  .434,  .573,  .699,  .807,    YAERO    2594
     . .883,  .928,  .980, 1.040, 1.095, 1.150,                          YAERO    2595
     .-.304, -.167, -.030,  .126,  .282,  .441,  .572,  .706,  .755,    YAERO    2596
     . .843,  .905,  .965, 1.025, 1.085, 1.140,                          YAERO    2597
     .-.319, -.176, -.033,  .135,  .304,  .465,  .615,  .688,  .727,    YAERO    2598
     . .810,  .874,  .941, 1.022, 1.085, 1.150,                          YAERO    2599
     .-.238, -.119, -.001,  .161,  .323,  .543,  .617,  .631,  .707,    YAERO    2600
     . .779,  .868,  .950, 1.025, 1.100, 1.175,                          YAERO    2601
     .-.281, -.110,  .060,  .220,  .379,  .479,  .564,  .584,  .663,    YAERO    2602
     . .752,  .857,  .959, 1.050, 1.145, 1.235,                          YAERO    2603
     .-.296, -.133,  .013,  .169,  .319,  .439,  .556,  .654,  .674,    YAERO    2604
     . .771,  .885, 1.003, 1.115, 1.225, 1.350,                          YAERO    2605
     .-.416, -.243, -.070,  .103,  .277,  .436,  .594,  .759,  .890,    YAERO    2606
     .1.015, 1.140, 1.265, 1.390, 1.515, 1.640/                          YAERO    2607
*                                                                        YAERO    2608
*     FLAP JET IMPINGEMENT NORMAL FORCE/THRUST FOR DF=45 DEG            YAERO    2609
*     THETAJ=6,24 IN 2 DEG INCR AND 98.5 DEG                            YAERO    2610
*                                                                        YAERO    2611
      DATA CNFJ1IT/                                                      YAERO    2612
     . .158, .123, .095, .072, .057, .036, .023, .012, .005, 0., 0./    YAERO    2613
*                                                                        YAERO    2614
*     FLAP JET IMPINGEMENT NORMAL FORCE/THRUST FOR DF=61.7 DEG          YAERO    2615
*     THETAJ=6,40 IN 2 DEG INCR AND 98.5 DEG                            YAERO    2616
*                                                                        YAERO    2617
      DATA CNFJ12T/                                                      YAERO    2618
     . .445, .323, .255, .205, .168, .137, .112, .092, .074, .058,      YAERO    2619
     . .047, .035, .026, .018, .012, .006, .001, 0.0, 0.0/               YAERO    2620
*                                                                        YAERO    2621
*     FLAP JET IMPINGEMENT AXIAL FORCE/THRUST FOR DF=45 DEG             YAERO    2622
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SUBROUTINE AERODAT    74/175  OPT=2                    FTN 4.9+538        82/10/22. 15.12.40        PAGE    47

      *      THETAJ=6,24 IN 2 DEG INCR AND 98.5 DEG                                   YAERO    2623
      *                                                                               YAERO    2624
             DATA CAFJT1T/                                                            YAERO    2625
            . -.077, -.060, -.046, -.034, -.025, -.018, -.011, -.006, -.003,          YAERO    2626
            . 0.0, 0.0/                                                               YAERO    2627
      *                                                                               YAERO    2628
      *      FLAP JET IMPINGEMENT AXIAL FORCE/THRUST FOR DF=61.7 DEG                  YAERO    2629
      *      THETAJ=6,40 IN 2 DEG INCR AND 98.5 DEG                                   YAERO    2630
      *                                                                               YAERO    2631
             DATA CAFJT2T/                                                            YAERO    2632
            . -.275, -.239, -.204, -.173, -.147, -.124, -.104, -.085, -.069,          YAERO    2633
            . -.054, -.043, -.032, -.023, -.014, -.009, -.004, -.001, 0., 0./         YAERO    2634
      *                                                                               YAERO    2635
      *      FLAP JET IMPINGEMENT PITCHING MOMENT/THRUST FOR DF=45 DEG                YAERO    2636
      *      THETAJ=6,24 IN 2 DEG INCR AND 98.5 DEG                                   YAERO    2637
      *                                                                               YAERO    2638
             DATA CMFJT1T/                                                            YAERO    2639
            .-1.07, -.800, -.610, -.450, -.330, -.235, -.150, -.090, -.040,           YAERO    2640
            .0.0, 0.0/                                                                YAERO    2641
      *                                                                               YAERO    2642
      *      FLAP JET IMPINGEMENT PITCHING MOMENT/THRUST FOR DF=61.7 DEG              YAERO    2643
      *      THETAJ=6,43 IN 2 DEG INCR AND 98.5                                       YAERO    2644
             DATA CMFJT2T/                                                            YAERO    2645
            .-2.52, -2.14, -1.78, -1.48, -1.24, -1.03, -0.85, -0.68, -0.54,           YAERO    2646
            .-.42, -.32, -.24, -.17, -.11, -.06, -.03, -.01, 0.,0./                   YAERO    2647
      *                                                                               YAERO    2648
      *      LIFT COEFFICIENT INCREMENT DUE TO FLAPS, DF=0,25 IN 5 DEG INCR,          YAERO    2649
      *      ALPHA=-4,24 IN 2 DEG INCR, MACH=.50,.58,.65,.75,.80,.85,.90,.95          YAERO    2650
      *                                                                               YAERO    2651
             DATA (HCLFT(I),I=1,75)/                                                  YAERO    2652
            . .105,  .107,  .112,  .115,  .116,  .114,  .110,  .105,  .087,           YAERO    2653
            . .075,  .070,  .053,  .036,  .022,  .025,                                YAERO    2654
            . .193,  .195,  .207,  .210,  .193,  .198,  .167,  .176,  .165,           YAERO    2655
            . .110,  .110,  .099,  .072,  .056,  .054,                                YAERO    2656
            . .300,  .300,  .300,  .289,  .290,  .285,  .275,  .245,  .205,           YAERO    2657
            . .152,  .125,  .105,  .072,  .058,  .055,                                YAERO    2658
            . .395,  .390,  .383,  .365,  .343,  .325,  .311,  .282,  .242,           YAERO    2659
            . .190,  .150,  .120,  .094,  .075,  .075,                                YAERO    2660
            . .510,  .480,  .450,  .420,  .375,  .350,  .330,  .310,  .280,           YAERO    2661
            . .215,  .170,  .140,  .105,  .090,  .095/                                YAERO    2662
             DATA (HCLFT(I),I=76,150)/                                                YAERO    2663
            . .095,  .100,  .104,  .105,  .104,  .100,  .095,  .086,  .075,           YAERO    2664
            . .059,  .045,  .040,  .030,  .025,  .020,                                YAERO    2665
            . .195,  .194,  .197,  .196,  .193,  .187,  .174,  .160,  .120,           YAERO    2666
            . .097,  .090,  .082,  .076,  .071,  .066,                                YAERO    2667
            . .300,  .298,  .294,  .289,  .281,  .272,  .256,  .235,  .170,           YAERO    2668
            . .125,  .115,  .105,  .100,  .092,  .086,                                YAERO    2669
            . .380,  .365,  .346,  .331,  .322,  .315,  .290,  .260,  .212,           YAERO    2670
            . .163,  .140,  .125,  .120,  .114,  .109,                                YAERO    2671
            . .445,  .427,  .410,  .384,  .360,  .335,  .310,  .284,  .240,           YAERO    2672
            . .187,  .160,  .142,  .135,  .130,  .125/                                YAERO    2673
             DATA (HCLFT(I),I=151,225)/                                               YAERO    2674
            . .095,  .094,  .100,  .100,  .100,  .098,  .087,  .075,  .060,           YAERO    2675
            . .043,  .030,  .036,  .040,  .031,  .005,                                YAERO    2676
            . .156,  .190,  .188,  .189,  .191,  .190,  .180,  .146,  .112,           YAERO    2677
            . .086,  .075,  .073,  .079,  .062,  .016,                                YAERO    2678
            . .271,  .287,  .276,  .275,  .273,  .270,  .260,  .221,  .163,           YAERO    2679
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     . .113, .102, .100, .105, .095, .046,                       YAERO   2680
     . .317, .335, .322, .314, .310, .311, .305, .250, .191,    YAERO   2681
     . .140, .126, .123, .126, .105, .061,                       YAERO   2682
     . .350, .370, .350, .340, .335, .340, .345, .275, .222,    YAERO   2683
     . .153, .155, .145, .145, .120, .075/                       YAERO   2684
      DATA (HCLFT(I),I=226,300)/                                 YAERO   2685
     . .115, .111, .110, .111, .114, .123, .136, .080, .072,    YAERO   2686
     . .050, .042, .041, .040, .040, .042,                       YAERO   2687
     . .180, .184, .186, .194, .204, .215, .226, .130, .111,    YAERO   2688
     . .097, .075, .083, .086, .087, .090,                       YAERO   2689
     . .267, .261, .255, .250, .258, .280, .273, .200, .154,    YAERO   2690
     . .116, .107, .110, .114, .116, .117,                       YAERO   2691
     . .306, .300, .294, .295, .305, .320, .326, .225, .200,    YAERO   2692
     . .142, .138, .135, .139, .140, .144,                       YAERO   2693
     . .335, .327, .321, .321, .335, .352, .366, .261, .222,    YAERO   2694
     . .154, .155, .150, .154, .155, .160/                       YAERO   2695
      DATA (HCLFT(I),I=301,375)/                                 YAERO   2696
     . .095, .110, .115, .117, .123, .142, .127, .083, .077,    YAERO   2697
     . .062, .056, .055, .050, .060, .047,                       YAERO   2698
     . .200, .175, .180, .190, .211, .239, .228, .115, .120,    YAERO   2699
     . .095, .049, .091, .088, .082, .066,                       YAERO   2700
     . .245, .233, .245, .240, .265, .290, .293, .178, .170,    YAERO   2701
     . .125, .113, .124, .133, .120, .100,                       YAERO   2702
     . .300, .285, .287, .249, .315, .334, .326, .220, .200,    YAERO   2703
     . .155, .142, .145, .154, .143, .121,                       YAERO   2704
     . .340, .313, .315, .320, .345, .371, .354, .240, .223,    YAERO   2705
     . .166, .164, .160, .161, .156, .135/                       YAERO   2706
      DATA (HCLFT(I),I=376,450)/                                 YAERO   2707
     . .075, .066, .085, .105, .120, .135, .090, .091, .085,    YAERO   2708
     . .076, .064, .070, .074, .073, .061,                       YAERO   2709
     . .110, .115, .135, .172, .210, .200, .147, .150, .125,    YAERO   2710
     . .106, .105, .106, .121, .122, .111,                       YAERO   2711
     . .161, .170, .189, .216, .265, .265, .205, .195, .175,    YAERO   2712
     . .150, .145, .142, .142, .141, .130,                       YAERO   2713
     . .210, .225, .215, .275, .315, .300, .257, .236, .210,    YAERO   2714
     . .175, .162, .160, .159, .156, .146,                       YAERO   2715
     . .245, .263, .287, .315, .364, .340, .305, .275, .240,    YAERO   2716
     . .196, .182, .174, .172, .170, .160/                       YAERO   2717
      DATA (HCLFT(I),I=451,525)/                                 YAERO   2718
     . .030, .020, .010, .005, .035, .100, .106, .095, .110,    YAERO   2719
     . .130, .100, .100, .100, .095, .085,                       YAERO   2720
     . .045, .052, .054, .093, .094, .167, .200, .160, .158,    YAERO   2721
     . .128, .125, .125, .127, .130, .115,                       YAERO   2722
     . .045, .055, .097, .125, .144, .220, .240, .210, .210,    YAERO   2723
     . .175, .175, .165, .160, .160, .145,                       YAERO   2724
     . .045, .057, .125, .155, .192, .255, .280, .250, .240,    YAERO   2725
     . .210, .200, .195, .188, .180, .179,                       YAERO   2726
     . .045, .059, .143, .185, .225, .285, .300, .265, .260,    YAERO   2727
     . .225, .220, .215, .205, .200, .196/                       YAERO   2728
      DATA (HCLFT(I),I=526,600)/                                 YAERO   2729
     . .025, .020, .005, .005, .015, .045, .090, .102, .125,    YAERO   2730
     . .125, .123, .110, .109, .106, .100,                       YAERO   2731
     . .035, .041, .050, .066, .086, .120, .140, .152, .150,    YAERO   2732
     . .155, .153, .112, .109, .105, .101,                       YAERO   2733
     . .035, .050, .070, .100, .127, .160, .167, .215, .216,    YAERO   2734
     . .205, .191, .172, .158, .145, .130,                       YAERO   2735
     . .035, .055, .085, .125, .176, .184, .215, .248, .270,    YAERO   2736
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     . .230,  .207,  .190,  .171,  .155,  .132,                             YAERO   2737
     . .035,  .057,  .100,  .150,  .177,  .200,  .231,  .270,  .290,        YAERO   2738
     . .250,  .230,  .205,  .185,  .170,  .155/                             YAERO   2739
*                                                                           YAERO   2740
*      LIFT COEFFICIENT INCREMENT DUE TO ONE AILERON                        YAERO   2741
*      DA=-30,30 IN 15 DEG INCR, M=.5,.65,.8,.9,1.2                         YAERO   2742
*                                                                           YAERO   2743
       DATA HCLAILT/                                                        YAERO   2744
     .-.120, -.061, 0.0, .089, .177,                                        YAERO   2745
     .-.135, -.068, 0.0, .089, .177,                                        YAERO   2746
     .-.107, -.054, 0.0, .060, .120,                                        YAERO   2747
     .-.030, -.015, 0.0, .060, .120/                                        YAERO   2748
*                                                                           YAERO   2749
*      PITCHING MOMENT INCREMENT DUE TO AOA RATE                            YAERO   2750
*      MACH=.50,1.00 IN .10 INCR                                            YAERO   2751
*                                                                           YAERO   2752
       DATA HCMADT/                                                         YAERO   2753
     .-5.99, -6.27, -6.76, -7.74, -10.26, -13.75/                           YAERO   2754
*                                                                           YAERO   2755
*      PITCHING MOMENT INCREMENT DUE TO AILERONS                            YAERO   2756
*      DA=-30,20 IN 10 DEG INCR,ALPHA=-4,24 IN 4 DEG INCR                   YAERO   2757
*                                                                           YAERO   2758
       DATA HCMDAT/                                                         YAERO   2759
     . .076,  .069,  .039, 0.000, -.034, -.041,                             YAERO   2760
     . .076,  .069,  .039, 0.000, -.034, -.041,                             YAERO   2761
     . .076,  .069,  .039, 0.000, -.034, -.041,                             YAERO   2762
     . .076,  .069,  .039, 0.000, -.034, -.041,                             YAERO   2763
     . .054,  .054,  .032, 0.000, -.029, -.041,                             YAERO   2764
     . .028,  .038,  .024, 0.000, -.024, -.027,                             YAERO   2765
     . .028,  .038,  .024, 0.000, -.024, -.027,                             YAERO   2766
     . .028,  .038,  .024, 0.000, -.024, -.027/                             YAERO   2767
*                                                                           YAERO   2768
*                     ********************                                  YAERO   2769
*                     * DRAG COEFFICIENT *                                  YAERO   2770
*                     ********************                                  YAERO   2771
*                                                                           YAERO   2772
*      BASELINE - HIGH ALPHA                                                YAERO   2773
*       ALPHA=-180,-20 IN 20 DEG INCR,-10 DEG,AND 40,180 IN 20 DEG INCR     YAERO   2774
*                                                                           YAERO   2775
       DATA HCDIT/                                                          YAERO   2776
     .0.060, 0.347, 0.919, 1.341, 1.571, 1.571, 1.341, 0.918, 0.344,        YAERO   2777
     .0.115, 0.085, 1.341, 1.571, 1.571, 1.341, 0.920, 0.347, 0.060/        YAERO   2778
*                                                                           YAERO   2779
*      BASELINE - NEGATIVE ALPHA                                            YAERO   2780
*       CL=-.35,-.05 IN .05 INCR, MACH=.5,.65,.80,.85,.90,.95,1.0,1.2       YAERO   2781
*                                                                           YAERO   2782
       DATA(HCD2T(I),I=1,56)/                                               YAERO   2783
     . .0370, .0420, .0420, .0470, .0850, .0980, .1170, .1295,              YAERO   2784
     . .0340, .0390, .0390, .0430, .0710, .0900, .1085, .1180,              YAERO   2785
     . .0320, .0350, .0353, .0395, .0620, .0840, .1015, .1100,              YAERO   2786
     . .0300, .0320, .0320, .0365, .0545, .0795, .0960, .1045,              YAERO   2787
     . .0280, .0300, .0300, .0340, .0485, .0755, .0920, .1000,              YAERO   2788
     . .0265, .0280, .0280, .0320, .0440, .0725, .0885, .0975,              YAERO   2789
     . .0250, .0260, .0260, .0300, .0400, .0700, .0850, .0960/              YAERO   2790
*                                                                           YAERO   2791
*      BASELINE - LOW ALPHA                                                 YAERO   2792
*       CL=0,.5 IN .05 INCR,.6,.7,.8,1.0,1.2; MACH=.5,.65,.8,.85,.9,.95,    YAERO   2793
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*       1.0,1.2                                                             YAERO
*                                                                           YAERO
        DATA(HCD2T(I),I=57,134)/                                            YAERO
     . .0242, .0251, .0252, .0283, .0381, .0606, .0846, .0907,              YAERO
     . .0236, .0246, .0246, .0271, .0360, .0672, .0840, .0905,              YAERO
     . .0235, .0245, .0247, .0266, .0352, .0672, .0847, .0915,              YAERO
     . .0239, .0251, .0253, .0265, .0357, .0684, .0868, .0936,              YAERO
     . .0246, .0261, .0262, .0269, .0371, .0709, .0900, .0970,              YAERO
     . .0261, .0277, .0279, .0284, .0390, .0745, .0945, .1021,              YAERO
     . .0281, .0300, .0303, .0309, .0422, .0794, .1020, .1098,              YAERO
     . .0305, .0330, .0332, .0344, .0470, .0861, .1098, .1185,              YAERO
     . .0334, .0366, .0368, .0385, .0531, .0948, .1195, .1282,              YAERO
     . .0369, .0410, .0413, .0438, .0604, .1054, .1305, .1395,              YAERO
     . .0411, .0464, .0454, .0499, .0695, .1184, .1432, .1525,              YAERO
     . .0518, .0591, .0629, .0671, .0935, .1514, .1700, .1792,              YAERO
     . .0570, .0750, .0800, .0912, .1270, .1910, .2050, .2180,              YAERO
     . .0855, .0925, .1025, .1232, .1760, .2400, .2450, .2650,              YAERO
     . .1450, .1910, .2300, .2682, .3510, .4320, .4500, .4850,              YAERO
     . .2970, .4410, .5400, .6032, .7310, .8100, .8500, .9000/              YAERO
*                                                                           YAERO
*       CD DUE TO AILERON DEFLECTION                                        YAERO
*        DA=-30 DEG AND -20,15 IN 5 DEG INCR, ALPHA=-4,12 IN 4 DEG INCR     YAERO
*        AND 24 DEG                                                         YAERO
*                                                                           YAERO
        DATA(HCDAILT(I),I=1,45)/                                            YAERO
     . .0200, .0100, .0056, .0022, .0006, .0000, .0001, .0003, .0009,       YAERO
     . .0214, .0111, .0068, .0033, .0010, .0000, .0004, .0014, .0037,       YAERO
     . .0280, .0140, .0080, .0037, .0012, .0000, .0003, .0010, .0027,       YAERO
     . .0168, .0050, .0016, .0002, .0001, .0000, .0002, .0006, .0016,       YAERO
     . .0168, .0050, .0016, .0002, .0001, .0000, .0002, .0006, .0016/       YAERO
        DATA(HCDAILT(I),I=46,90)/                                           YAERO
     . .0132, .0054, .0016,-.0011,-.0009, .0000, .0012, .0027, .0042,       YAERO
     . .0108, .0040, .0008,-.0015,-.0011, .0000, .0015, .0033, .0052,       YAERO
     . .0154, .0370, .0030, .0000,-.0005, .0000, .0024, .0057, .0090,       YAERO
     . .0100, .0035, .0004,-.0019,-.0012, .0000, .0011, .0020, .0028,       YAERO
     . .0100, .0035, .0004,-.0019,-.0012, .0000, .0011, .0020, .0028/       YAERO
        DATA(HCDAILT(I),I=91,135)/                                          YAERO
     .-.0016,-.0023,-.0024,-.0023,-.0016, .0000, .0026, .0060, .0098,       YAERO
     . .0025,-.0001,-.0013,-.0016,-.0014, .0000, .0033, .0093, .0180,       YAERO
     . .0043, .0013, .0001,-.0008,-.0011, .0000, .0026, .0060, .0098,       YAERO
     . .0045, .0032, .0013,-.0001,-.0009, .0000, .0033, .0090, .0180,       YAERO
     . .0045, .0032, .0013,-.0001,-.0008, .0000, .0033, .0090, .0180/       YAERO
        DATA(HCDAILT(I),I=136,180)/                                         YAERO
     . .0054, .0017, .0031,-.0011,-.0012, .0000, .0060, .0156, .0252,       YAERO
     . .0006,-.0017,-.0024,-.0024,-.0016, .0000, .0040, .0100, .0174,       YAERO
     . .0152, .0053, .0014,-.0005,-.0008, .0000, .0023, .0053, .0089,       YAERO
     . .0026, .0030,-.0010,-.0016,-.0014, .0000, .0036, .0144, .0244,       YAERO
     . .0026, .0000,-.0010,-.0016,-.0014, .0000, .0036, .0144, .0244/       YAERO
*                                                                           YAERO
*       CD DUE TO STABILATOR                                                YAERO
*       ALPHA=0,24 IN 4 DEG INCR; DH=-12,12 IN 4 DEG INCR; M=0.5,.65,.80,   YAERO
*        .90                                                                YAERO
*                                                                           YAERO
        DATA(HCDSTT(I),I=1,49)/                                             YAERO
     . .0527, .0459, .0550, .1031, .2010, .3005, .4203,                     YAERO
     . .0399, .0368, .0501, .1158, .2278, .3282, .4460,                     YAERO
     . .0289, .0311, .0493, .1171, .2417, .3452, .4616,                     YAERO
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     . .0252, .0309, .0517, .1181, .2473, .3500, .4800,
     . .0247, .0333, .0591, .1383, .2710, .3818, .5167,
     . .0265, .0376, .0635, .1515, .2970, .3986, .5451,
     . .0311, .0441, .0833, .1574, .3231, .4069, .5634/
      DATA(HCDSTT(I),I=50,98)/
     . .0563, .0461, .0623, .1527, .2423, .2984, .4200,
     . .0411, .0381, .0613, .1532, .2472, .3263, .4431,
     . .0303, .0328, .0614, .1523, .2542, .3498, .4631,
     . .0265, .0319, .0614, .1532, .2597, .3557, .4765,
     . .0292, .0462, .0900, .1975, .3015, .4094, .5491,
     . .0373, .0740, .1483, .2760, .3835, .5167, .6707,
     . .0515, .1168, .2318, .3925, .5104, .6842, .8721/
      DATA(HCDSTT(I),I=99,147)/
     . .0622, .0560, .1128, .1738, .2526, .3378, .4156,
     . .0467, .0480, .1021, .1765, .2627, .3568, .4615,
     . .0353, .0418, .0975, .1791, .2693, .3728, .4924,
     . .0317, .0404, .0996, .1841, .2780, .3853, .4943,
     . .0320, .0433, .1048, .1958, .2935, .4020, .5157,
     . .0364, .0474, .1166, .2107, .3055, .4213, .5632,
     . .0426, .0527, .1361, .2289, .3128, .4431, .6398/
      DATA(HCDSTT(I),I=148,196)/
     . .0990, .1042, .1480, .2110, .3000, .4775, .7573,
     . .0870, .0945, .1420, .2042, .2953, .4886, .7862,
     . .0769, .0881, .1303, .2035, .2972, .4997, .8150,
     . .0697, .0859, .1367, .2064, .3112, .5108, .8440,
     . .0693, .0906, .1592, .2522, .3261, .5219, .8729,
     . .0763, .1025, .2061, .3457, .3396, .5330, .9018,
     . .0915, .1225, .2904, .4925, .3516, .5441, .9307/
*
*     DRAG DUE TO RUDDER DEFLECTION
*     M=.65,.8,.9,.95 TO 1.2; ALPHA=-4,24 IN 4 DEG INCR
*
      DATA HCDDRT/
     . .000266, .000266, .00038, 5*.00040,
     . .000266, .000266, .00038, 5*.00040,
     . 8*.000266,
     . .000366, .00012, 6*.000133/
*
*     CHANGE IN PITCHING MOMENT COEFFICIENT DUE TO POWER
*     ALPHA=-4,24 IN 4 DEG INCR; VE=.05,1.05 IN .10 INCR; THETAJ=0 DEG,
*      5 DEG, AND 10,100 IN 10 DEG INCR
*
      DATA (HCMPOWT(I),I=1,88)/
     .-.215, -.233, -.253, -.275, -.330, -.422, -.540, -.690,
     .-.085, -.100, -.115, -.135, -.180, -.258, -.355, -.492,
     . .010, -.004, -.013, -.030, -.065, -.132, -.207, -.310,
     . .063,  .054,  .045,  .033,  .009, -.045, -.100, -.182,
     . .082,  .074,  .067,  .057,  .037, -.004, -.040, -.099,
     . .080,  .072,  .065,  .057,  .040,  .007, -.014, -.054,
     . .060,  .053,  .052,  .045,  .030,  .010, 0.000, -.028,
     . .046,  .039,  .033,  .025,  .014,  .005, 0.000, -.012,
     . .030,  .024,  .020,  .014,  .007,  .005, 0.000, -.001,
     . .022,  .017,  .014,  .009,  .004,  .004, 0.000, 0.000,
     . .014,  .013,  .010,  .005,  .005, 0.000, 0.000, 0.000/
      DATA(HCMPOWT(I),I=89,176)/
     . .183,  .197,  .267,  .220,  .265,  .235,  .205,  .175,
     . .117,  .120,  .125,  .133,  .167,  .150,  .124,  .097,
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SUBROUTINE AERODAT     74/175  OPT=2                     FTN 4.8+518        82/10/22. 15.12.40        PAGE    42

     . .017,   .092,   .096,   .103,   .120,   .104,   .080,   .055,            YAERO     2908
     . .070,   .074,   .079,   .085,   .090,   .075,   .052,   .028,            YAERO     2909
     . .059,   .062,   .067,   .072,   .068,   .053,   .032,   .010,            YAERO     2910
     . .050,   .055,   .060,   .065,   .052,   .037,   .017,  -.004,            YAERO     2911
     . .045,   .050,   .055,   .059,   .042,   .025,   .007,  -.010,            YAERO     2912
     . .037,   .040,   .045,   .050,   .034,   .017,  0.000,  -.016,            YAERO     2913
     . .030,   .034,   .043,   .043,   .027,   .010,  -.005,  -.020,            YAERO     2914
     . .024,   .026,   .032,   .035,   .022,   .005,  -.010,  -.022,            YAERO     2915
     . .024,   .026,   .032,   .035,   .022,   .005,  -.010,  -.022/            YAERO     2916
      DATA(HCMPOWT(I),I=177,264)/                                               YAERO     2917
     . .205,   .218,   .230,   .245,   .253,   .225,   .207,   .167,            YAERO     2918
     . .145,   .159,   .170,   .185,   .190,   .167,   .148,   .113,            YAERO     2919
     . .104,   .115,   .126,   .138,   .145,   .125,   .107,   .072,            YAERO     2920
     . .077,   .087,   .099,   .109,   .110,   .089,   .074,   .040,            YAERO     2921
     . .060,   .068,   .080,   .090,   .083,   .060,   .045,   .012,            YAERO     2922
     . .047,   .056,   .065,   .075,   .062,   .040,   .024,  -.006,            YAERO     2923
     . .040,   .049,   .057,   .067,   .050,   .026,   .010,  -.017,            YAERO     2924
     . .034,   .043,   .052,   .062,   .040,   .020,   .002,  -.024,            YAERO     2925
     . .028,   .037,   .046,   .057,   .037,   .015,  0.000,  -.030,            YAERO     2926
     . .023,   .032,   .042,   .052,   .035,   .010,  -.005,  -.034,            YAERO     2927
     . .023,   .032,   .042,   .052,   .035,   .010,  -.005,  -.034/            YAERO     2928
      DATA(HCMPOWT(I),I=265,352)/                                               YAERO     2929
     . .190,   .210,   .230,   .235,   .260,   .295,   .317,   .333,            YAERO     2930
     . .132,   .150,   .165,   .175,   .187,   .210,   .233,   .246,            YAERO     2931
     . .100,   .115,   .130,   .140,   .148,   .166,   .136,   .200,            YAERO     2932
     . .077,   .093,   .106,   .115,   .122,   .136,   .155,   .166,            YAERO     2933
     . .063,   .078,   .090,   .100,   .105,   .116,   .130,   .143,            YAERO     2934
     . .055,   .069,   .080,   .087,   .093,   .100,   .113,   .124,            YAERO     2935
     . .050,   .062,   .074,   .080,   .085,   .092,   .100,   .110,            YAERO     2936
     . .046,   .060,   .070,   .075,   .080,   .085,   .087,   .096,            YAERO     2937
     . .045,   .056,   .066,   .072,   .077,   .080,   .080,   .086,            YAERO     2938
     . .045,   .055,   .065,   .070,   .072,   .075,   .075,   .075,            YAERO     2939
     . .045,   .055,   .065,   .070,   .072,   .075,   .075,   .075/            YAERO     2940
      DATA(HCMPOWT(I),I=353,440)/                                               YAERO     2941
     . .180,   .208,   .240,   .258,   .282,   .305,   .349,   .385,            YAERO     2942
     . .132,   .154,   .176,   .195,   .215,   .289,   .275,   .304,            YAERO     2943
     . .102,   .122,   .140,   .159,   .180,   .200,   .232,   .258,            YAERO     2944
     . .082,   .100,   .119,   .135,   .155,   .172,   .202,   .225,            YAERO     2945
     . .069,   .087,   .104,   .120,   .140,   .156,   .180,   .200,            YAERO     2946
     . .060,   .080,   .095,   .110,   .128,   .144,   .162,   .183,            YAERO     2947
     . .055,   .073,   .090,   .105,   .122,   .135,   .150,   .169,            YAERO     2948
     . .052,   .070,   .087,   .100,   .119,   .126,   .140,   .157,            YAERO     2949
     . .050,   .067,   .085,   .100,   .115,   .120,   .130,   .146,            YAERO     2950
     . .050,   .067,   .085,   .099,   .112,   .115,   .123,   .138,            YAERO     2951
     . .050,   .067,   .085,   .098,   .112,   .115,   .123,   .138/            YAERO     2952
      DATA(HCMPOWT(I),I=441,528)/                                               YAERO     2953
     . .177,   .210,   .240,   .267,   .310,   .350,   .405,   .450,            YAERO     2954
     . .135,   .162,   .186,   .209,   .240,   .272,   .312,   .352,            YAERO     2955
     . .109,   .130,   .152,   .175,   .200,   .232,   .265,   .303,            YAERO     2956
     . .090,   .110,   .133,   .150,   .175,   .205,   .235,   .272,            YAERO     2957
     . .080,   .095,   .115,   .135,   .157,   .187,   .215,   .249,            YAERO     2958
     . .070,   .085,   .104,   .125,   .145,   .175,   .200,   .232,            YAERO     2959
     . .065,   .083,   .098,   .116,   .139,   .168,   .192,   .220,            YAERO     2960
     . .060,   .075,   .095,   .110,   .135,   .163,   .185,   .212,            YAERO     2961
     . .059,   .072,   .090,   .110,   .132,   .160,   .180,   .204,            YAERO     2962
     . .057,   .070,   .088,   .108,   .130,   .157,   .176,   .198,            YAERO     2963
     . .057,   .070,   .088,   .108,   .130,   .157,   .176,   .198/            YAERO     2964
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      DATA(HCMPOWT(I),I=529,616)/                                       YAERO  2965
     . .185,  .220,  .257,  .292,  .310,  .357,  .405,  .487,          YAERO  2966
     . .143,  .168,  .195,  .219,  .245,  .290,  .335,  .390,          YAERO  2967
     . .115,  .135,  .163,  .182,  .207,  .252,  .295,  .340,          YAERO  2968
     . .096,  .115,  .136,  .157,  .182,  .226,  .267,  .310,          YAERO  2969
     . .084,  .100,  .120,  .140,  .165,  .210,  .248,  .280,          YAERO  2970
     . .075,  .092,  .108,  .130,  .155,  .197,  .234,  .272,          YAERO  2971
     . .070,  .085,  .102,  .122,  .147,  .190,  .225,  .260,          YAERO  2972
     . .065,  .080,  .096,  .118,  .140,  .185,  .215,  .255,          YAERO  2973
     . .064,  .077,  .094,  .115,  .137,  .182,  .210,  .247,          YAERO  2974
     . .064,  .076,  .093,  .114,  .135,  .180,  .205,  .244,          YAERO  2975
     . .064,  .076,  .093,  .114,  .135,  .180,  .205,  .244/          YAERO  2976
      DATA(HCMPOWT(I),I=617,704)/                                       YAERO  2977
     . .200,  .225,  .256,  .276,  .320,  .385,  .430,  .485,          YAERO  2978
     . .150,  .170,  .200,  .220,  .250,  .305,  .355,  .417,          YAERO  2979
     . .119,  .133,  .165,  .185,  .212,  .264,  .314,  .373,          YAERO  2980
     . .100,  .117,  .140,  .160,  .186,  .236,  .285,  .342,          YAERO  2981
     . .086,  .102,  .125,  .144,  .169,  .219,  .265,  .318,          YAERO  2982
     . .079,  .092,  .113,  .132,  .155,  .206,  .252,  .300,          YAERO  2983
     . .076,  .086,  .106,  .123,  .147,  .200,  .242,  .284,          YAERO  2984
     . .072,  .083,  .100,  .115,  .140,  .195,  .234,  .270,          YAERO  2985
     . .070,  .080,  .097,  .110,  .135,  .192,  .227,  .258,          YAERO  2986
     . .070,  .080,  .095,  .106,  .133,  .190,  .222,  .248,          YAERO  2987
     . .070,  .080,  .095,  .106,  .133,  .190,  .222,  .248/          YAERO  2988
      DATA(HCMPOWT(I),I=705,792)/                                       YAERO  2989
     . .193,  .233,  .260,  .285,  .330,  .375,  .425,  .495,          YAERO  2990
     . .147,  .175,  .198,  .222,  .255,  .305,  .360,  .428,          YAERO  2991
     . .118,  .142,  .162,  .184,  .213,  .265,  .318,  .382,          YAERO  2992
     . .100,  .119,  .140,  .159,  .186,  .239,  .290,  .348,          YAERO  2993
     . .085,  .104,  .124,  .140,  .167,  .220,  .268,  .320,          YAERO  2994
     . .079,  .094,  .113,  .130,  .155,  .207,  .252,  .298,          YAERO  2995
     . .075,  .089,  .106,  .122,  .148,  .199,  .240,  .280,          YAERO  2996
     . .072,  .083,  .102,  .117,  .142,  .190,  .228,  .265,          YAERO  2997
     . .070,  .080,  .100,  .114,  .138,  .185,  .219,  .250,          YAERO  2998
     . .070,  .080,  .098,  .112,  .136,  .182,  .213,  .235,          YAERO  2999
     . .070,  .083,  .098,  .112,  .136,  .182,  .210,  .235/          YAERO  3000
      DATA(HCMPOWT(I),I=793,880)/                                       YAERO  3001
     . .200,  .225,  .262,  .287,  .317,  .369,  .418,  .500,          YAERO  3002
     . .147,  .170,  .199,  .219,  .246,  .302,  .356,  .425,          YAERO  3003
     . .117,  .138,  .162,  .180,  .206,  .260,  .315,  .377,          YAERO  3004
     . .098,  .117,  .138,  .155,  .180,  .234,  .285,  .340,          YAERO  3005
     . .088,  .105,  .122,  .137,  .162,  .212,  .260,  .307,          YAERO  3006
     . .082,  .095,  .110,  .125,  .149,  .195,  .242,  .282,          YAERO  3007
     . .080,  .090,  .105,  .118,  .140,  .185,  .226,  .261,          YAERO  3008
     . .080,  .087,  .100,  .113,  .134,  .174,  .212,  .242,          YAERO  3009
     . .080,  .085,  .100,  .110,  .130,  .166,  .200,  .223,          YAERO  3010
     . .080,  .085,  .100,  .109,  .127,  .160,  .189,  .205,          YAERO  3011
     . .080,  .085,  .100,  .109,  .127,  .160,  .189,  .205/          YAERO  3012
      DATA(HCMPOWT(I),I=881,968)/                                       YAERO  3013
     . .210,  .240,  .265,  .295,  .315,  .375,  .435,  .493,          YAERO  3014
     . .150,  .172,  .195,  .214,  .240,  .298,  .352,  .412,          YAERO  3015
     . .118,  .135,  .157,  .175,  .200,  .254,  .305,  .360,          YAERO  3016
     . .098,  .114,  .133,  .150,  .174,  .225,  .275,  .320,          YAERO  3017
     . .093,  .100,  .117,  .132,  .155,  .204,  .250,  .290,          YAERO  3018
     . .087,  .092,  .105,  .120,  .142,  .186,  .229,  .265,          YAERO  3019
     . .078,  .089,  .100,  .114,  .134,  .173,  .210,  .244,          YAERO  3020
     . .076,  .097,  .098,  .109,  .127,  .162,  .195,  .225,          YAERO  3021
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     . .075,  .087,  .094,  .106,  .122,  .152,  .180,  .205,           YAERO    3022
     . .075,  .086,  .096,  .105,  .120,  .144,  .166,  .187,           YAERO    3023
     . .075,  .086,  .095,  .105,  .120,  .144,  .166,  .187/           YAERO    3024
      DATA(HCMPOWT(I),I=969,1056)/                                       YAERO    3025
     . .217,  .250,  .275,  .300,  .325,  .375,  .430,  .490,           YAERO    3026
     . .148,  .175,  .193,  .209,  .239,  .287,  .340,  .390,           YAERO    3027
     . .115,  .135,  .153,  .165,  .194,  .240,  .290,  .335,           YAERO    3028
     . .098,  .114,  .128,  .140,  .165,  .210,  .256,  .297,           YAERO    3029
     . .090,  .100,  .112,  .123,  .144,  .186,  .230,  .266,           YAERO    3030
     . .085,  .093,  .102,  .113,  .130,  .170,  .210,  .242,           YAERO    3031
     . .082,  .093,  .097,  .107,  .123,  .157,  .193,  .222,           YAERO    3032
     . .079,  .087,  .093,  .102,  .118,  .146,  .178,  .202,           YAERO    3033
     . .078,  .085,  .093,  .100,  .115,  .136,  .164,  .185,           YAERO    3034
     . .076,  .085,  .090,  .100,  .112,  .130,  .150,  .170,           YAERO    3035
     . .076,  .085,  .090,  .100,  .112,  .130,  .150,  .170/           YAERO    3036
*                                                                        YAERO    3037
*     PITCHING MOMENT INCREMENT DUE TO PITCH RATE                        YAERO    3038
*     ALPHA=-4 TO 24 DEG; M=.5,.65,.80,.90,1.2                           YAERO    3039
*                                                                        YAERO    3040
      DATA HCMQI/                                                        YAERO    3041
     . -.17, -.179, -.202, -.255, -.255/                                 YAERO    3042
*                                                                        YAERO    3043
*     CHANGE IN YAWING MOMENT DUE TO RIGHT AILERON                       YAERO    3044
*     M=.65,.8,.9,AND .95 TO 1.2; ALPHA=-4,24 IN 4 DEG INCR; DA=-30,-20,YAERO    3045
*      -10,-5,5,10,20 DEG                                                YAERO    3046
*                                                                        YAERO    3047
      DATA(HCNDAT(I),I=1,32)/                                            YAERO    3048
     . .0112,  .0180,  .0112,  .0100,                                    YAERO    3049
     . .0112,  .0180,  .0112,  .0100,                                    YAERO    3050
     . .0082,  .0085,  .0076,  .0050,                                    YAERO    3051
     . .0054,  .0038,  .0025,  .0017,                                    YAERO    3052
     .-.0020, -.0029, -.0024, -.0011,                                    YAERO    3053
     .-.0070, -.0070, -.0100, -.0118,                                    YAERO    3054
     .-.0096, -.0098, -.0114, -.0124,                                    YAERO    3055
     .-.0114, -.0126, -.0140, -.0149/                                    YAERO    3056
      DATA(HCNDAT(I),I=33,64)/                                           YAERO    3057
     . .0076,  .0080,  .0076,  .0046,                                    YAERO    3058
     . .0076,  .0080,  .0076,  .0046,                                    YAERO    3059
     . .0057,  .0058,  .0051,  .0014,                                    YAERO    3060
     . .0029,  .0024,  .0016,  .0009,                                    YAERO    3061
     .-.0017, -.0018, -.0022, -.0026,                                    YAERO    3062
     .-.0054, -.0056, -.0086, -.0104,                                    YAERO    3063
     .-.0078, -.0082, -.0104, -.0123,                                    YAERO    3064
     .-.0092, -.0109, -.0127, -.0140/                                    YAERO    3065
      DATA(HCNDAT(I),I=65,96)/                                           YAERO    3066
     . .0039,  .0040,  .0036,  .0010,                                    YAERO    3067
     . .0038,  .0040,  .0036,  .0013,                                    YAERO    3068
     . .0027,  .0029,  .0025, 0.0000,                                    YAERO    3069
     . .0010,  .0014,  .0006, 0.0000,                                    YAERO    3070
     .-.0011, -.0010, -.0020, -.0035,                                    YAERO    3071
     .-.0031, -.0035, -.0054, -.0068,                                    YAERO    3072
     .-.0046, -.0062, -.0089, -.0106,                                    YAERO    3073
     .-.0061, -.0080, -.0106, -.0124/                                    YAERO    3074
      DATA(HCNDAT(I),I=97,128)/                                          YAERO    3075
     . .0020,  .0020,  .0016,  .0002,                                    YAERO    3076
     . .0020,  .0020,  .0016,  .0002,                                    YAERO    3077
     . .0014,  .0014,  .0012, 0.0000,                                    YAERO    3078
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     . .0002,  .0004,  .0002, -.0002,
     .-.0008, -.0004, -.0014, -.0022,
     .-.0016, -.0020, -.0029, -.0032,
     .-.0024, -.0036, -.0049, -.0056,
     .-.0032, -.0044, -.0056, -.0063/
      DATA(HCNDAT(I),I=129,160)/
     .32*0.0/
      DATA(HCNDAT(I),I=161,192)/
     .-.0019, -.0012, -.0011, -.0010,
     .-.0018, -.0012, -.0011, -.0010,
     .-.0006, -.0006, -.0007, -.0008,
     . .0001, 0.0000, -.0003, -.0004,
     . .0008,  .0008,  .0014,  .0018,
     . .0014,  .0022,  .0031,  .0037,
     . .0022,  .0036,  .0050,  .0060,
     . .0030,  .0052,  .0071,  .0083/
      DATA(HCNDAT(I),I=193,224)/
     .-.0037, -.0016, -.0011, -.0010,
     .-.0037, -.0016, -.0011, -.0010,
     .-.0009, -.0006, -.0008, -.0009,
     . .0006, -.0003, -.0004, -.0004,
     . .0018,  .0010,  .0016,  .0024,
     . .0030,  .0041,  .0054,  .0064,
     . .0045,  .0076,  .0100,  .0114,
     . .0058,  .0105,  .0140,  .0160/
      DATA(HCNDAT(I),I=225,256)/
     .-.0079, -.0014, -.0018, -.0038,
     .-.0078, -.0014, -.0018, -.0038,
     .-.0010, -.0005, -.0013, -.0032,
     . .0011, -.0002, -.0005, -.0004,
     . .0043,  .0020,  .0050,  .0072,
     . .0066,  .0104,  .0138,  .0156,
     . .0090,  .0150,  .0194,  .0216,
     . .0119,  .0206,  .0236,  .0260/
*
*     INCREMENTAL YAWING MOMENT COEFFICIENT DUE TO RUDDER
*     M=.65,.8,.9,.95,1.05,1.2; ALPHA=-4,24 IN 4 DEG INCR
*
      DATA HCNDRT/
     .-.025, -.025, -.025, -.024, -.024, -.018,
     .-.025, -.025, -.024, -.024, -.022, -.018,
     .-.025, -.025, -.023, -.023, -.020, -.017,
     .-.025, -.022, -.023, -.022, -.019, -.016,
     .-.022, -.020, -.020, -.020, -.018, -.016,
     .-.021, -.019, -.015, -.017, -.018, -.015,
     .-.015, -.016, -.008, -.012, -.017, -.015,
     .-.005, -.012, -.001, -.006, -.016, -.015/
*
*     YM INCREMENT DUE TO YAW RATE
*     M=.5,.6,.7,.8,.9,1.2; ALPHA=-4,8 IN 4 DEG INCR AND 24 DEG
*
      DATA HCNRT/
     .  -.00725, -.00745, -.0080, -.0080, -.0087, -.0087,
     .  -.00795, -.00810, -.00905, -.00775, -.0087, -.0087,
     .  -.00715, -.00730, -.00710, -.00765, -.0084, -.0084,
     .  -.00644, -.00660, -.00640, -.00689, -.0076, -.0076/
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*        YM INCREMENT DUE TO ROLL RATE
*        M=.5,.6,.7,.8,.9,1.2; ALPHA=-4,8 IN 4 DEG INCR AND 24 DEG
*
         DATA HCNPT/
        . .00025, .00025, .00025, .00025, .00035, .00035,
        .-.00120, -.00125, -.0013, -.0013, -.0013, -.0013,
        .-.00235, -.00225, -.0022, -.00225, -.00235, -.00235/
*
*        ROLLING MOMENT COEFFICIENT
*
*        BASELINE
*        M=.50 AND .65,1.05 IN .10 INCR; ALPHA=-4,24 IN 2 DEG INCR
*
         DATA HCLBT/
        . .00060,  .00048, 0.00060,  .00015,  .00030,  .00040,
        . .00036,  .00030, 0.00000,  .00010,  .00025,  .00035,
        . .00010,  .00005, -.00009, -.00002, 0.00000, 0.00000,
        .-.00017, -.00025, -.00028, -.00029, -.00030, -.00027,
        .-.00043, -.00060, -.00065, -.00070, -.00073, -.00075,
        .-.00063, -.00100, -.00135, -.00030,  .00030,  .00050,
        .-.00079, -.00120, -.00202, 0.00000,  .00050,  .00065,
        .-.00080, -.00116, -.00155, -.00602,  .00050,  .00065,
        .-.00075, -.00093, -.00090, -.00030,  .00010,  .00030,
        .-.00075, -.00073, -.00089, -.00088, -.00090, -.00090,
        .-.00095, -.00070, -.00120, -.00155, -.00115, -.00075,
        .-.00140, -.00112, -.00158, -.00189, -.00165, -.00130,
        .-.00200, -.00155, -.00177, -.00199, -.00180, -.00140,
        .-.00229, -.00177, -.00190, -.00201, -.00180, -.00140,
        .-.00248, -.00172, -.00200, -.00201, -.00180, -.00140/
*
*        RM DUE TO RIGHT AILERON (PER DEGREE)
*        M=.65,.8,.9,.95,1.2; ALPHA=-4,24 IN 4 DEG INCR; DA=-30,-20,-10,-5,
*         0,5,10,20
*
         DATA(HCLLDAT(I),I=1,32)/
        . .0350,   .0350,   .0345,   .0245,
        . .0350,   .0350,   .0345,   .0245,
        . .0350,   .0350,   .0330,   .0150,
        . .0350,   .0350,   .0300,   .0095,
        . .0215,   .0045,   .0020,   .0015,
        . .0215,   .0045,   .0020,   .0015,
        . .0215,   .0045,   .0020,   .0015,
        . .0215,   .0045,   .0020,   .0015/
         DATA(HCLLDAT(I),I=33,64)/
        . .0275,   .0260,   .0240,   .0135,
        . .0275,   .0260,   .0240,   .0135,
        . .0275,   .0260,   .0225,   .0100,
        . .0275,   .0260,   .0205,   .0080,
        . .0160,   .0075,   .0060,   .0060,
        . .0160,   .0075,   .0060,   .0050,
        . .0160,   .0075,   .0060,   .0060,
        . .0160,   .0075,   .0060,   .0060/
         DATA(HCLLDAT(I),I=65,96)/
        . .0160,   .0170,   .0115,   .0050,
        . .0160,   .0170,   .0115,   .0050,
        . .0160,   .0170,   .0110,   .0040,
        . .0160,   .0170,   .0105,   .0030,
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     . .0090,  .0090,  .0070,  .0035,                                 YAERO    3193
     . .0090,  .0090,  .0070,  .0035,                                 YAERO    3194
     . .0090,  .0090,  .0070,  .0035,                                 YAERO    3195
     . .0090,  .0090,  .0070,  .0035/                                 YAERO    3196
      DATA(HCLLDAT(I),I=97,128)/                                      YAERO    3197
     . .0060,  .0095,  .0085,  .0065,                                 YAERO    3198
     . .0080,  .0095,  .0085,  .0055,                                 YAERO    3199
     . .0080,  .0095,  .0080,  .0055,                                 YAERO    3200
     . .0080,  .0095,  .0075,  .0050,                                 YAERO    3201
     . .0047,  .0064,  .0060,  .0035,                                 YAERO    3202
     . .0047,  .0064,  .0060,  .0035,                                 YAERO    3203
     . .0047,  .0064,  .0060,  .0035,                                 YAERO    3204
     . .0047,  .0064,  .0060,  .0035/                                 YAERO    3205
      DATA(HCLLDAT(I),I=129,160)/                                     YAERO    3206
     .32*0.0/                                                         YAERO    3207
      DATA(HCLLDAT(I),I=161,192)/                                     YAERO    3208
     .-.0085, -.0085, -.0035, -.0020,                                 YAERO    3209
     .-.0085, -.0085, -.0035, -.0020,                                 YAERO    3210
     .-.0095, -.0085, -.0045, -.0030,                                 YAERO    3211
     .-.0085, -.0085, -.0055, -.0050,                                 YAERO    3212
     .-.0037, -.0037, -.0026, -.0020,                                 YAERO    3213
     .-.0037, -.0037, -.0026, -.0020,                                 YAERO    3214
     .-.0037, -.0037, -.0026, -.0020,                                 YAERO    3215
     .-.0037, -.0037, -.0026, -.0020/                                 YAERO    3216
      DATA(HCLLDAT(I),I=193,224)/                                     YAERO    3217
     .-.0115, -.0115, -.0060, -.0050,                                 YAERO    3218
     .-.0115, -.0115, -.0060, -.0050,                                 YAERO    3219
     .-.0115, -.0115, -.0085, -.0070,                                 YAERO    3220
     .-.0115, -.0115, -.0110, -.0110,                                 YAERO    3221
     .-.0075, -.0075, -.0050, -.0070,                                 YAERO    3222
     .-.0075, -.0075, -.0050, -.0070,                                 YAERO    3223
     .-.0075, -.0075, -.0050, -.0070,                                 YAERO    3224
     .-.0075, -.0075, -.0050, -.0070/                                 YAERO    3225
      DATA(HCLLDAT(I),I=225,256)/                                     YAERO    3226
     .-.0085, -.0085, -.0035, -.0020,                                 YAERO    3227
     .-.0085, -.0085, -.0035, -.0020,                                 YAERO    3228
     .-.0085, -.0085, -.0045, -.0030,                                 YAERO    3229
     .-.0085, -.0085, -.0055, -.0050,                                 YAERO    3230
     .-.0037, -.0037, -.0025, -.0020,                                 YAERO    3231
     .-.0037, -.0037, -.0025, -.0020,                                 YAERO    3232
     .-.0037, -.0037, -.0025, -.0020,                                 YAERO    3233
     .-.0037, -.0037, -.0025, -.0020/                                 YAERO    3234
*                                                                     YAERO    3235
*     RM DUE TO RUDDER                                                YAERO    3236
*     M=.65,.8,.9,.95,1.05,1.2; ALPHA=-4,24 IN 4 DEG INCR             YAERO    3237
*                                                                     YAERO    3238
      DATA HCLLDR/                                                    YAERO    3239
     . .0045,  .0043,  .0045,  .0055,  .0040,  .0045,                 YAERO    3240
     . .0045,  .0043,  .0045,  .0055,  .0040,  .0045,                 YAERO    3241
     . .0025,  .0020,  .0030,  .0025,  .0025,  .0030,                 YAERO    3242
     . .0010,  .0005, 0.0000, 0.0000, 0.0000,  .0025,                 YAERO    3243
     .-.0010, -.0020, -.0030, -.0020, -.0025, 0.0000,                 YAERO    3244
     .-.0030, -.0015, -.0030, -.0020, -.0025, -.0020,                 YAERO    3245
     .-.0040, -.0030, -.0030, -.0020, -.0025, -.0020,                 YAERO    3246
     .-.0035, -.0045, -.0030, -.0020, -.0025, -.0020/                 YAERO    3247
*                                                                     YAERO    3248
*     RM DUE TO YAW RATE                                              YAERO    3249
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*         M=.5,.6,.7,.8,.9,1.2; ALPHA=-4,0,4,8,24 DEG
*
          DATA HCLLRT/
         . .0028,  .0029,  .0030,  .0031,  .0032,  .0032,
         . .0029,  .0029,  .0030,  .0031,  .0032,  .0032,
         . .0040,  .0041,  .0042,  .0043,  .0043,  .0043,
         . .0053,  .0055,  .0060,  .0070,  .0062,  .0062,
         . .0053,  .0055,  .0060,  .0070,  .0062,  .0062/
*
*         RM DUE TO ROLL RATE
*         M=.5,.6,.7,.8,.9,1.2; ALPHA=-4,0,4,8,24 DEG
*
          DATA HCLLPT/
         .-.0059, -.0061, -.0061, -.0062, -.0064, -.0064,
         .-.0059, -.0061, -.0061, -.0062, -.0064, -.0064,
         .-.0059, -.0060, -.0050, -.0061, -.0062, -.0062,
         .-.0058, -.0059, -.0060, -.0061, -.0062, -.0062,
         .-.0022, -.0022, -.0022, -.0022, -.0023, -.0023/
*
*         SIDE FORCE COEFFICIENT
*
*         BASELINE
*         M=.5,.65,.75,.85,.95,1.05,ALPHA=-4,24 IN 2 DEG INCR; DF=5,10 DEG
*
          DATA(HCYBT(I),I=1,90)/
         .-.0200, -.0213, -.0220, -.0228, -.0240, -.0250,
         .-.0205, -.0218, -.0220, -.0229, -.0240, -.0250,
         .-.0209, -.0219, -.0221, -.0230, -.0240, -.0250,
         .-.0211, -.0220, -.0220, -.0233, -.0240, -.0250,
         .-.0215, -.0220, -.0219, -.0231, -.0240, -.0250,
         .-.0218, -.0219, -.0217, -.0228, -.0240, -.0250,
         .-.0220, -.0219, -.0215, -.0225, -.0240, -.0250,
         .-.0221, -.0218, -.0213, -.0223, -.0233, -.0245,
         .-.0223, -.0215, -.0210, -.0220, -.0233, -.0245,
         .-.0223, -.0210, -.0207, -.0214, -.0223, -.0230,
         .-.0215, -.0200, -.0200, -.0208, -.0215, -.0223,
         .-.0206, -.0190, -.0195, -.0200, -.0205, -.0213,
         .-.0190, -.0170, -.0185, -.0187, -.0195, -.0200,
         .-.0170, -.0145, -.0173, -.0170, -.0170, -.0170,
         .-.0139, -.0110, -.0159, -.0150, -.0150, -.0150/
          DATA(HCYBT(I),I=91,180)/
         .-.0015, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0015, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0015, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0020, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0020, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0020, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0020, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0015, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .-.0010, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         .0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         . .0005, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         . .0015, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         . .0020, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         . .0030, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000,
         . .0040, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000/
*
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*     SF INCREMENT DUE TO AILERONS                                    YAERO   3307
*     DA=-30,20 IN 10 DEG INCR; ALPHA=-4,24 IN 4 DEG INCR             YAERO   3308
*                                                                     YAERO   3309
      DATA HCYDAT/                                                    YAERO   3310
     . .00177, .0110, .0055, 0., -.006, -.012,                        YAERO   3311
     . .0153, .0037, .005, 0., -.0352, -.0104,                        YAERO   3312
     . .0019, .0118, .006, 0., -.0047, -.0092,                        YAERO   3313
     . .013, .0062, .004, 0., -.002, -.0078,                          YAERO   3314
     . .0057, .0036, .0027, 0., -.0034, -.0066,                       YAERO   3315
     . .0057, .0036, .0027, 0., -.0034, -.0066,                       YAERO   3316
     . .0057, .0036, .0027, 0., -.0034, -.0066,                       YAERO   3317
     . .0057, .0036, .0027, 0., -.0034, -.0066/                       YAERO   3318
*                                                                     YAERO   3319
*     SF INCREMENT DUE TO RUDDER                                      YAERO   3320
*     M=.65,.8,.9,.95,1.05,1.2; ALPHA=-4,24 IN 4 DEG INCR             YAERO   3321
*                                                                     YAERO   3322
      DATA HCYDRT/                                                    YAERO   3323
     . .040, .040, .040, .042, .040, .030,                            YAERO   3324
     . .040, .040, .038, .042, .036, .030,                            YAERO   3325
     . .040, .039, .033, .042, .033, .030,                            YAERO   3326
     . .038, .034, .038, .040, .029, .030,                            YAERO   3327
     . .037, .034, .030, .036, .026, .027,                            YAERO   3328
     . .035, .028, .034, .042, .024, .026,                            YAERO   3329
     . .032, .022, .034, .042, .020, .026,                            YAERO   3330
     . .026, .018, .034, .042, .017, .026/                            YAERO   3331
*                                                                     YAERO   3332
*     SF INCREMENT DUE TO YAW RATE (PER DEGREE)                       YAERO   3333
*     M=.5,.6,.7,.8,.9,1.2                                            YAERO   3334
*                                                                     YAERO   3335
      DATA HCYRT/                                                     YAERO   3336
     . .0058, .0058, .00585, .0059, .0061, .0064/                     YAERO   3337
*                                                                     YAERO   3338
*     RM INCREMENT DUE TO FLAPS WITH LEPX OFF; DF IS GREATER THAN OR  YAERO   3339
*     EQUAL TO 10 DEG; M=.50 AND .65,1.05 BY INCR OF 10; ALPHA=-4,24 IN YAERO 3340
*     2 DEG INCR                                                      YAERO   3341
*                                                                     YAERO   3342
      DATA HCLBFT/                                                    YAERO   3343
     .-.0003, -.0008, 0.0000, 0.0000, 0.0000, 0.0000,                 YAERO   3344
     .-.0001, -.0005,  .0001, 0.0000, 0.0000, 0.0000,                 YAERO   3345
     .0.0000, -.0003,  .0001, 0.0000, 0.0000, 0.0000,                 YAERO   3346
     .-.0001, -.0001,  .0001, 0.0000, 0.0000, 0.0000,                 YAERO   3347
     .-.0002, -.0001,  .0001, 0.0000, 0.0000, 0.0000,                 YAERO   3348
     .-.0002,  .0002, -.0001, 0.0000, 0.0000, 0.0000,                 YAERO   3349
     .0.0000, 0.0000, -.0007, 0.0000, 0.0000, 0.0000,                 YAERO   3350
     .-.0001,  .0001, -.0004, 0.0000, 0.0000, 0.0000,                 YAERO   3351
     .-.0002,  .0002,  .0005, 0.0000, 0.0000, 0.0000,                 YAERO   3352
     .-.0009, 0.0000,  .0003, 0.0000, 0.0000, 0.0000,                 YAERO   3353
     .-.0016, -.0005,  .0003, 0.0000, 0.0000, 0.0000,                 YAERO   3354
     .-.0016, -.0007,  .0004, 0.0000, 0.0000, 0.0000,                 YAERO   3355
     .-.0015, -.0008,  .0003, 0.0000, 0.0000, 0.0000,                 YAERO   3356
     .-.0015, -.0009,  .0003, 0.0000, 0.0000, 0.0000,                 YAERO   3357
     .-.0014, -.0013,  .0004, 0.0000, 0.0000, 0.0000/                 YAERO   3358
*                                                                     YAERO   3359
*     BASELINE YAWING MOMENT                                          YAERO   3360
*     M=.5 AND .65,1.05 BY INCR OF 10; ALPHA= -4,24 IN 2 DEG INCR     YAERO   3361
*                                                                     YAERO   3362
      DATA HCNBHT/                                                    YAERO   3363
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     .6*.003,
     .6*.003,
     .6*.003,
     .6*.003,
     .6*.003,
     ..003, .0028, .0028, 3*.003,
     ..003, .00265, .0024, 3*.0028,
     ..0028, .0022, .0014, 3*.0019,
     ..0026, .0017, .0013, 3*.0009,
     ..0023, .0012, .0008, 3*.0002,
     ..0019, .0007, .0003, 3*-0.0005,
     ..0013, .0001, -.0001, 3*-0.0009,
     ..0006, -.0006, -.0005, 3*-0.0013,
     .-.0004, -.0013, -.0009, 3*-0.0016,
     .-.0012, -.0018, -.0012, 3*-0.0019/
*
*     EFFECT OF FLAP DEFLECTION ON DRAG
*     DF=5,25 IN 5 DEG INCR; ALPHA= -4,24 IN 4 DEG INCR; M=.50,.65,.80,
*     .85,.90,.95
*
      DATA(HCDFT(I),I=1,75)/
     . -.0228, -.0176, -.0132, -.0089, -.0054, -.0003,  .0054,  .0202,
     .  .0189,  .0108,  .0098,  .0157,  .0250,  .0250,  .0250,
     . -.0093, -.0036,  .0031,  .0074,  .0119,  .0173,  .0245,  .0387,
     .  .0418,  .0324,  .0302,  .0373,  .0450,  .0450,  .0450,
     .  .0055,  .0130,  .0197,  .0250,  .0294,  .0347,  .0428,  .0590,
     .  .0633,  .0554,  .0522,  .0589,  .0686,  .0686,  .0686,
     .  .0204,  .0297,  .0362,  .0426,  .0474,  .0530,  .0628,  .0789,
     .  .0883,  .0787,  .0744,  .0919,  .0917,  .0917,  .0917,
     .  .0352,  .0468,  .0545,  .0607,  .0658,  .0720,  .0834,  .0990,
     .  .1131,  .1036,  .0981,  .1048,  .1148,  .1148,  .1148/
      DATA(HCDFT(I),I=76,150)/
     . -.0040, -.0035, -.0019,  .0010,  .0035,  .0075,  .0125,  .0210,
     .  .0135, -.0215, -.0390, -.0480, -.0480, -.0480, -.0480,
     . -.0095,  0.   ,  .0060,  .0105,  .0155,  .0215,  .0290,  .0410,
     .  .0370,  .0275,  .0180,  .0080,  .0080,  .0080,  .0080,
     .  0.   ,  .0125,  .0210,  .0275,  .0335,  .0420,  .0520,  .0635,
     .  .0620,  .0570,  .0495,  .0425,  .0425,  .0425,  .0425,
     .  .0150,  .0275,  .0375,  .0435,  .0505,  .0615,  .0760,  .0875,
     .  .0880,  .0841,  .0790,  .0740,  .0740,  .0740,  .0740,
     .  .0300,  .0430,  .0525,  .0595,  .0660,  .0800,  .1010,  .1125,
     .  .1135,  .1115,  .1080,  .1045,  .1045,  .1045,  .1045/
      DATA(HCDFT(I),I=151,225)/
     . -.0070, -.0060, -.0035,  0.   ,  .0050,  .0110,  .0180,  .0260,
     .  .0350,  .0440,  .0545,  .0545,  .0545,  .0545,  .0545,
     . -.0050, -.0020,  .0035,  .0110,  .0190,  .0290,  .0390,  .0485,
     .  .0530,  .0690,  .0795,  .0795,  .0795,  .0795,  .0795,
     .  .0020,  .0080,  .0160,  .0250,  .0355,  .0470,  .0580,  .0700,
     .  .0815,  .0935,  .1060,  .1060,  .1060,  .1060,  .1060,
     .  .0105,  .0185,  .0290,  .0410,  .0525,  .0655,  .0790,  .0925,
     .  .1060,  .1200,  .1340,  .1340,  .1340,  .1340,  .1340,
     .  .0200,  .0305,  .0425,  .0560,  .0710,  .0870,  .1020,  .1170,
     .  .1320,  .1460,  .1650,  .1650,  .1650,  .1650,  .1650/
      DATA(HCDFT(I),I=226,300)/
     . -.0075, -.0050, -.0025,  .0005,  .0050,  .0125,  .0215,  .0330,
     .  .0435,  .0665,  .0665,  .0665,  .0665,  .0665,  .0665,
     . -.0020,  .0010,  .0040,  .0095,  .0170,  .0270,  .0390,  .0530,
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     .  .0680,   .0855,   .0855,   .0855,   .0855,   .0855,   .0855,            YAERO      3421
     .  .0045,   .0070,   .0125,   .0215,   .0325,   .0435,   .0585,   .0730,   YAERO      3422
     .  .0880,   .1050,   .1050,   .1050,   .1050,   .1050,   .1050,            YAERO      3423
     .  .0120,   .0160,   .0240,   .0360,   .0485,   .0625,   .0775,   .0925,   YAERO      3424
     .  .1030,   .1240,   .1240,   .1240,   .1240,   .1240,   .1240,            YAERO      3425
     .  .0200,   .0265,   .0393,   .0525,   .0670,   .0815,   .0965,   .1120,   YAERO      3426
     .  .1270,   .1435,   .1435,   .1435,   .1435,   .1435,   .1435/            YAERO      3427
      DATA(HCDFT(I),I=301,375)/                                                 YAERO      3428
     . -.0011,  -.0010,  -.0009,  -.0002,   .0008,   .0029,   .0068,   .0123,   YAERO      3429
     .  .0190,   .0270,   .0369,   .0359,   .0369,   .0369,   .0369,            YAERO      3430
     .  .0029,   .0033,   .0036,   .0052,   .0085,   .0153,   .0226,   .0314,   YAERO      3431
     .  .0398,   .0493,   .0586,   .0586,   .0586,   .0586,   .0586,            YAERO      3432
     .  .0089,   .0083,   .0098,   .0140,   .0218,   .0314,   .0408,   .0512,   YAERO      3433
     .  .0610,   .0717,   .0819,   .0819,   .0819,   .0819,   .0819,            YAERO      3434
     .  .0168,   .0176,   .0219,   .0285,   .0387,   .0496,   .0608,   .0720,   YAERO      3435
     .  .0831,   .0946,   .1064,   .1054,   .1064,   .1064,   .1054,            YAERO      3436
     .  .0268,   .0306,   .0374,   .0470,   .0588,   .0693,   .0832,   .0951,   YAERO      3437
     .  .1073,   .1192,   .1318,   .1318,   .1318,   .1318,   .1318/            YAERO      3438
      DATA(HCDFT(I),I=376,450)/                                                 YAERO      3439
     . -.0045,   .0010,   .0022,   .0025,   .0035,   .0055,   .0084,   .0125,   YAERO      3440
     . 7*0.0125,                                                                YAERO      3441
     .  .0050,   .0050,   .0055,   .0060,   .0070,   .0100,   .0150,   .0225,   YAERO      3442
     . 7*0.0225,                                                                YAERO      3443
     .  .0110,   .0087,   .0080,   .0082,   .0115,   .0180,   .0260,   .0345,   YAERO      3444
     . 7*0.0345,                                                                YAERO      3445
     .  .0165,   .0125,   .0110,   .0115,   .0175,   .0260,   .0360,   .0490,   YAERO      3446
     . 7*0.0490,                                                                YAERO      3447
     .  .0220,   .0168,   .0160,   .0175,   .0260,   .0365,   .0500,   .0655,   YAERO      3448
     . 7*0.0655/                                                                YAERO      3449
*                                                                               YAERO      3450
*     PITCHING MOMENT INCREMENT DUE TO FLAP-JET IMPINGEMENT                     YAERO      3451
*     ALPHA=0,4,8,12 DEG                                                        YAERO      3452
*                                                                               YAERO      3453
      DATA DCMFI(I)/-.010,-.02,-.03,-.04/                                       YAERO      3454
*                                                                               YAERO      3455
      RETURN                                                                    YAERO      3456
      END                                                                       YAERO      3457


        SYMBOLIC REFERENCE MAP (R=2)

ENTRY POINTS       DEF LINE      REFERENCES
    1  AERODAT         1          3456

VARIABLES      SN   TYPE              RELOCATION
   301  ALPCT        REAL          ARRAY     ARDARRY       REFS        11        68    DEFINED     193
     0  ARD          REAL          ARRAY     ARDARRY       REFS         9     43*11       38*28   39*43      1*##
  3771  CAAILT       REAL          ARRAY     ARDARRY       REFS        11        68    DEFINED     531
  3565  CABAS1T      REAL          ARRAY     ARDARRY       REFS        11        68    DEFINED     547
  3612  CABAS2T      REAL          ARRAY     ARDARRY       REFS        11        68    DEFINED     554
  3727  CAFJIT       REAL          ARRAY     ARDARRY       REFS        11        68    DEFINED     574
 26630  CAFJI1T      REAL          ARRAY     ARDARRY       REFS        43       104    DEFINED    2625
 26643  CAFJI2T      REAL          ARRAY     ARDARRY       REFS        43       104    DEFINED    2632
  3657  CAFLAPT      REAL          ARRAY     ARDARRY       REFS        11        68    DEFINED     564
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      SUBROUTINE AERODAT    74/175  OPT=2                    FTN 4.6+439        82/10/22. 15.12.40       PAGE    62

VARIABLES        SN   TYPE            RELOCATION
  7132   CAGE55T      REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1000     1017     1038
  6126   CAGE81T      REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED      884      903
  4022   CAPOWT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      601      614
  4162   CA55T        REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      631
  5012   CLLAILT      REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      730
  4632   CLLBAST      REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      701
  4662   CLLPOWT      REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      703
  5172   CLLPT        REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      752
  5162   CLLRT        REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      747
  5372   CLNAILT      REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      733      811
  5202   CLNBAST      REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      759
  5232   CLNPOWT      REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      765
  5552   CLNPT        REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED      828
  5542   CLNRT        REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED      823
  1767   CMAILT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      367
  1576   CMBAS1T      REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      323
  1623   CMBAS2T      REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      330
  3303   CMFJIT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      510      527
 26656   CMFJ11T      REAL        ARRAY     ARDARRY        REFS        43       104    DEFINED     2639
 26701   CMFJ12T      REAL        ARRAY     ARDARRY        REFS        43       104    DEFINED     2645
  1670   CMFLAPT      REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      341
  7512   CMGE55T      REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1055     1074     1093
  6362   CMGE81T      REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED      917      936
   262   CNAILT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      180
     0   CNBAS1T      REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      129
    25   CNBAS2T      REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      135
   472   CNFJIT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      205
 26572   CNFJ11T      REAL        ARRAY     ARDARRY        REFS        43       104    DEFINED     2612
 26605   CNFJ12T      REAL        ARRAY     ARDARRY        REFS        43       104    DEFINED     2619
    72   CNFLAPT      REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      147      162
  6552   CNGE55T      REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED      944      963      982
  5572   CNGE81T      REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED      837      856      975
   556   CNPOWT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      224      236      248      260
                                                            222       284       296       308
  4462   CYAILT       REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      683
  4322   CYBAST       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      648
  4352   CYPOWT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      662
  3745   DCAT         REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      580
 10262   DCA50T       REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1144
 10356   DCA60T       REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1161
  5342   DCLNHIT      REAL        ARRAY     ARDARRY        REFS        11        80    DEFINED      796
 44623   DCMFJIT      REAL        ARRAY     ARDARRY        REFS        59       119    DEFINED     3454
  2313   DCMPOWT      REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      437      452      467      482
                                                            497
  1745   DCMT         REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      356
  2200   DCMUPT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      411
 10452   DCM10T       REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1179     1191
  2254   DCM25T       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      423
 10642   DCM50T       REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1208
 10736   DCM60T       REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1225
  2271   DCM62T       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      430
 11612   DCNPOWT      REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1249
 10072   DCN50T       REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1110
 10166   DCN60T       REAL        ARRAY     ARDARRY        REFS        28        80    DEFINED     1127
  4342   DCYHIT       REAL        ARRAY     ARDARRY        REFS        11        68    DEFINED      656
 21313   DRMH81U      REAL        ARRAY     ARDARRY        REFS        43        91    DEFINED     2152
 20403   DRMP60U      REAL        ARRAY     ARDARRY        REFS        43        91    DEFINED     2074     2093     2112
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      SUBROUTINE AERODAT     74/175  OPT=2                        FTN 4.8+538        82/10/22. 15.12.40         PAGE    63

VARIABLES         SN   TYPE            RELOCATION
21433  DRMPB1U    REAL           ARRAY    ARDARRY        REFS       43        91   DEFINED    2176    2193
11672  DSFTU      REAL           ARRAY    ARDARRY        REFS       28        91   DEFINED    1259    1279    1289    1299
                                                         1309
 2020  EPS1T      REAL           ARRAY    ARDARRY        REFS       11        68   DEFINED     377
 2130  EPS2T      REAL           ARRAY    ARDARRY        REFS       11        68   DEFINED     388
30560  HCDAILT    REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2819    2824    2830    2836
31353  HCDDRT     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2883
43721  HCDFT      REAL           ARRAY    ARDARRY        REFS       59       119   DEFINED    3384    3395    3406    3417
                                                         3428     3439
31044  HCDSTT     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2847    2855    2863    2871
30246  HCD1T      REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2776
30270  HCD2T      REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2733    2796
30054  HCLAILT    REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2744
41535  HCLBET     REAL           ARRAY    ARDARRY        REFS       59       119   DEFINED    3343
34361  HCLBT      REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3143
26724  HCLFT      REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2652    2663    2674    2685
                                                         2696     2707      2718     2729
34527  HCLLDAT    REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3170    3179    3188    3197
                                                         3206     3208      3217     3226
35127  HCLLDRT    REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3239
35245  HCLLPT     REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3262
35207  HCLLRT     REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3252
26267  HCL1T      REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2581
26313  HCL2T      REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2589
30160  HCMADT     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2753
23501  HCMB1T     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2371
23530  HCMB2T     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2379
30166  HCMDAT     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2759
25137  HCMFT      REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2488    2499    2510    2521
                                                         2532     2543      2554     2565
31410  HCMPDWT    REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2893    2905    2917    2929
                                                         2941     2953      2965     2977      2989    3001    3013    3025
33450  HCMQT      REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    3041
23737  HCMSTT     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    2403    2413    2423    2433
                                                         2443     2453      2463     2473
42665  HCNBHT     REAL           ARRAY    ARDARRY        REFS       59       119   DEFINED    3353
33027  HCNDAT     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    3049    3057    3066    3075
                                                         3084     3086      3095     3104
34227  HCNDRT     REAL           ARRAY    ARDARRY        REFS       43       104   DEFINED    3117
34337  HCNPT      REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3139
34307  HCNRT      REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3130
35303  HCYBT      REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3274    3290
35603  HCYDAT     REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3310
35663  HCYDRT     REAL           ARRAY    ARDARRY        REFS       59       104   DEFINED    3323
35743  HCYRT      REAL           ARRAY    ARDARRY        REFS       59       119   DEFINED    3336
16241  PASF60U    REAL           ARRAY    ARDARRY        REFS       28        91   DEFINED    1862
16401  PASF81U    REAL           ARRAY    ARDARRY        REFS       28        91   DEFINED    1882
21733  PAYM60U    REAL           ARRAY    ARDARRY        REFS       43        91   DEFINED    2209
22073  PAYM81U    REAL           ARRAY    ARDARRY        REFS       43        91   DEFINED    2229
 3757  RCAT       REAL           ARRAY    ARDARRY        REFS       11        68   DEFINED     585
 2162  RCT        REAL           ARRAY    ARDARRY        REFS       11        68   DEFINED     404
 2140  RKT        REAL           ARRAY    ARDARRY        REFS       11        68   DEFINED     397
11602  RKDT       REAL           ARRAY    ARDARRY        REFS       28        80   DEFINED    1242
14204  RMAT81U    REAL           ARRAY    ARDARRY        REFS       28        91   DEFINED    1602    1617    1632
12233  RMBF00U    REAL           ARRAY    ARDARRY        REFS       28        91   DEFINED    1330
12327  RMAE60U    REAL           ARRAY    ARDARRY        REFS       28        91   DEFINED    1343
12423  RMBF81U    REAL           ARRAY    ARDARRY        REFS       28        91   DEFINED    1362    1377    1392
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      SUBROUTINE AERODAT     74/175  OPT=2                             FTN 4.0+538       02/10/22. 15.12.43       PAGE    64

VARIABLES       SN  TYPE            RELOCATION
12745   RMAE960U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1510
14014   RMGE000U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1549      1562
21123   RMPB810U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     2132
13053   RM2P470U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1429
14526   RM4P120U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1654      1659      1684
15050   RM7P050U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1706      1721      1736
13453   SFGF600U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1539
13530   SFGF810U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1525      1544
17677   SFTB600U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     2007
20037   SFTB810U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     2027      2037      2047      2057
16563   SFTP600U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     1902      1915
17033   SFTP810U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     1935      1948      1961      1974
                                                         1987
22775   YMBS600U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     2308
23135   YMBS810U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     2329      2347
15372   YMGF600U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1757
15447   YMGF810U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1773      1783      1793      1803
22255   YMPE600U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     2249
22415   YMPE810U   REAL          ARRAY     ARDARRY       REFS        43         91      DEFINED     2269      2282
16073   YMSF600U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1842
15733   YMSF810U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1821
13206   YMTB000U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1455
13263   YMTB600U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1471
13340   YMTB810U   REAL          ARRAY     ARDARRY       REFS        28         91      DEFINED     1487

COMMON BLOCKS    LENGTH
        ARDARRY   19000

STATISTICS
   PROGRAM LENGTH                    38      3
   CM LABELED COMMON LENGTH     45070B   19000
          160000B CM USED
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SUBROUTINE AERDYAB    74/175  OPT=2                        FTN 4.8+538        82/10/22. 15.17.40        PAGE     1

          SUBROUTINE AERDYAB                                                    YAERO     3458
                                                                                YAERO     3459
                                                                                YAERO     3460
                                                                                YAERO     3461
      *                                                                         YAERO     3462
          COMMON / FARRAY / F(1000)                                             YAERO     3463
          COMMON / ARDARRY / ARD(19000)                                         YAERO     3464
      *                                                                         YAERO     3465
          EQUIVALENCE                                                           YAERO     3466
         .(CHBAS1T,ARD(    1)),(CHBAS2T,ARD(   22)),(CHFLAPT,ARD(   59)),      YAERO     3467
         .(CHATLT ,ARD(  179)),(ALPCT  ,ARD(  194)),(CHFJIT ,ARD(  315)),      YAERO     3468
         .(CHP1WT ,ARD(  367)),(CMBAS1T,ARD(  895)),(CMBAS2T,ARD(  916)),      YAERO     3469
         .(CMFLAPT,ARD(  953)),(DCMT   ,ARD(  998)),(CMATLT ,ARD( 1016)),      YAERO     3470
         .(EPS1T  ,ARD( 1041)),(EPS2T  ,ARD( 1089)),(RKT    ,ARD( 1121)),      YAERO     3471
         .(RCT    ,ARD( 1139)),(DCMUPT ,ARD( 1153)),(DCM25T ,ARD( 1197)),      YAERO     3472
         .(DCM62T ,ARD( 1210)),(DCMPOWT,ARD( 1228)),(CMFJIT ,ARD( 1732)),      YAERO     3473
         .(CABAS1T,ARD( 1910)),(CABAS2T,ARD( 1931)),(CAFLAPT,ARD( 1968)),      YAERO     3474
         .(CAFJIT ,ARD( 2008)),(DCAT   ,ARD( 2022)),(RCAT   ,ARD( 2032)),      YAERO     3475
         .(CAAILT ,ARD( 2042)),(CAPOWT ,ARD( 2067)),(CA55T  ,ARD( 2163)),      YAERO     3476
         .(CYBAST ,ARD( 2259)),(DCYHIT ,ARD( 2275)),(CYPOWT ,ARD( 2293)),      YAERO     3477
         .(CYAILT ,ARD( 2355)),(CLLBAST,ARD( 2459)),(CLLPCWT,ARD( 2483)),      YAERO     3478
         .                     (CLLATLT,ARD( 2571)),(CLLRT  ,ARD( 2675)),      YAERO     3479
         .(CLLPT  ,ARD( 2683)),(CLNBAST,ARD( 2691)),(CLNPCWT,ARD( 2715)),      YAERO     3480
         .(DCLNHIT,ARD( 2787)),                     (CLNAILT,ARD( 2811))       YAERO     3481
      *                                                                         YAERO     3482
          EQUIVALENCE                                                           YAERO     3483
         .(CLN2T  ,ARD( 2915)),(CLNPT  ,ARD( 2923)),                            YAERO     3484
         .(CNGF81T,ARD( 2939)),(CAGF81T,ARD( 3159)),(CMGF81T,ARD( 3315)),      YAERO     3485
         .(CNGF55T,ARD( 3435)),(CAGE55T,ARD( 3675)),(CMGF55T,ARD( 3915)),      YAERO     3486
         .(DCN50T ,ARD( 4155)),(DCN60T ,ARD( 4215)),(DCA50T ,ARD( 4275)),      YAERO     3487
         .(DCA60T ,ARD( 4335)),(DCM10T ,ARD( 4395)),(DCM50T ,ARD( 4515)),      YAERO     3488
         .(DCM60T ,ARD( 4575)),(RKOT   ,ARD( 4995)),(DCNPCWT,ARD( 5003)),      YAERO     3489
         .(DSFTU  ,ARD( 5051)),(RMBF00U,ARD( 5276)),(RMBF60U,ARD( 5336)),      YAERO     3490
         .(RMBF81U,ARD( 5396)),(RMBF96U,ARD( 5506)),(RM2P47U,ARD( 5676)),      YAERO     3491
         .(YMTB00U,ARD( 5767)),(YMTB60U,ARD( 5812)),(YMTB81U,ARD( 5857)),      YAERO     3492
         .(SFGE60U,ARD( 5932)),(SFGE81U,ARD( 5977)),(RMGFC0U,ARD( 6157)),      YAERO     3493
         .(RMATB1U,ARD( 6277)),(R14P12U,ARD( 6487)),(RM7P05U,ARD( 6697)),      YAERO     3494
         .(YMGF60U,ARD( 6907)),(YMGE81U,ARD( 6952)),(YMSF81U,ARD( 7132)),      YAERO     3495
         .(YMSF60U,ARD( 7228)),(PASF60U,ARD( 7330)),(PASF81U,ARD( 7426))       YAERO     3496
      *                                                                         YAERO     3497
          EQUIVALENCE                                                           YAERO     3498
         .(SFTP60U,ARD( 7540)),(SFTP81U,ARD( 7708)),(SFTB60U,ARD( 8128)),      YAERO     3499
         .(SFTB81U,ARD( 8224)),(DRMP60U,ARD( 8452)),(RMPR81U,ARD( 8788)),      YAERO     3500
         .(DRMB81U,ARD( 8908)),(DRMP81U,ARD( 8988)),(PRYM60U,ARD( 9180)),      YAERO     3501
         .(PRYM81U,ARD( 9276)),(YMPE60U,ARD( 9390)),(YMFL81U,ARD( 9486)),      YAERO     3502
         .(YMAS60U,ARD( 9726)),(YMAS81U,ARD( 9822)),(HCMB1T ,ARD(10050)),      YAERO     3503
         .(HCMB2T ,ARD(10073)),(HCMSTT ,ARD(10208)),(HCMFT  ,ARD(10848)),      YAERO     3504
         .(HCL1T  ,ARD(11448)),(HCL2T  ,ARD(11468)),                            YAERO     3505
         .(CNFJ11T,ARD(11643)),(CNFJ12T,ARD(11654)),(CAFJ11T,ARD(11673)),      YAERO     3506
         .(CAFJ12T,ARD(11684)),(CMFJ11T,ARD(11703)),(CMFJ12T,ARD(11714)),      YAERO     3507
         .(HCLFT  ,ARD(11733)),(HCLAILT,ARD(12333)),                            YAERO     3508
         .                     (HCHADT ,ARD(12401)),(HCMDAT ,ARD(12407)),      YAERO     3509
         .(HCD1T  ,ARD(12455)),(HCD2T  ,ARD(12473)),(HCDAILT,ARD(12657)),      YAERO     3510
         .(HCDSTT ,ARD(12837)),(HCDDRT ,ARD(13033)),(HCPPOWT,ARD(13065)),      YAERO     3511
         .(HCMQT  ,ARD(14121)),(HCNDAT ,ARD(14232)),(HCNDRT ,ARD(14488))       YAERO     3512
      *                                                                         YAERO     3513
          EQUIVALENCE                                                           YAERO     3514
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     .(HCNRT   ,ARD(14536)),(HCMPT   ,ARD(14560)),(HCLRT   ,ARD(14578)),     YAERO   3515
     .                                            (HCLDAT,ARD(14680)),       YAERO   3516
     .(HCLLDRT,ARD(14936)),(HCLLRT ,ARD(14984)),(HCLLPT ,ARD(15034)),       YAERO   3517
     .(HCYRT   ,ARD(15044)),                                                 YAERO   3518
     .(HCYDAT ,ARD(15236)),(HCYDRT ,ARD(15284)),(HCYRT   ,ARD(15332)),       YAERO   3519
     .(HCLBFT ,ARD(17246)),                      (HCNBHT ,ARD(17846)),       YAERO   3520
     .                    (HCDFT   ,ARD(18386)),(DCMFJTT,ARD(18836))        YAERO   3521
*                                                                           YAERO   3522
      EQUIVALENCE                                                           YAERO   3523
     . (DTOR    ,F(91))                                                     YAERO   3524
     .,(RTOD    ,F(92))                                                     YAERO   3525
     .,(INITIAL,F(153))                                                     YAERO   3526
     .,(A       ,F(1001))                                                   YAERO   3527
      EQUIVALENCE                                                           YAERO   3528
     . (H       ,A(11))                                                     YAERO   3529
     .,(VE      ,A(30))                                                     YAERO   3530
     .,(QBAR    ,A(39))                                                     YAERO   3531
     .,(RMACH   ,A(40))                                                     YAERO   3532
     .,(THA     ,A(103))                                                    YAERO   3533
     .,(PHI     ,A(104))                                                    YAERO   3534
     .,(COSPHI  ,A(110))                                                    YAERO   3535
     .,(U       ,A(114))                                                    YAERO   3536
     .,(V       ,A(115))                                                    YAERO   3537
     .,(ALP     ,A(117))                                                    YAERO   3538
     .,(BETA    ,A(118))                                                    YAERO   3539
     .,(SINALP  ,A(119))                                                    YAERO   3540
     .,(COSALP  ,A(120))                                                    YAERO   3541
     .,(ALPD    ,A(123))                                                    YAERO   3542
      EQUIVALENCE                                                           YAERO   3543
     . (P       ,A(147))                                                    YAERO   3544
     .,(Q       ,A(148))                                                    YAERO   3545
     .,(R       ,A(149))                                                    YAERO   3546
     .,(RHO     ,A(178))                                                    YAERO   3547
     .,(CGFS    ,A(253))                                                    YAERO   3548
     .,(CGBL    ,A(254))                                                    YAERO   3549
     .,(CGWL    ,A(255))                                                    YAERO   3550
     .,(CG      ,A(270))                                                    YAERO   3551
      EQUIVALENCE                                                           YAERO   3552
     . (CLNR    ,A(301))                                                    YAERO   3553
     .,(CLNP    ,A(302))                                                    YAERO   3554
     .,(DCLNF   ,A(303))                                                    YAERO   3555
     .,(DCLNFJI,A(304))                                                     YAERO   3556
     .,(YMDGF   ,A(305))                                                    YAERO   3557
     .,(CLNRAT  ,A(306))                                                    YAERO   3558
     .,(HCY     ,A(307))                                                    YAERO   3559
     .,(HCYR    ,A(308))                                                    YAERO   3560
     .,(HCLL    ,A(309))                                                    YAERO   3561
     .,(CLNH    ,A(310))                                                    YAERO   3562
     .,(RSTAB   ,A(311))                                                    YAERO   3563
     .,(PSTAB   ,A(312))                                                    YAERO   3564
     .,(HCLLRF  ,A(318))                                                    YAERO   3565
      EQUIVALENCE                                                           YAERO   3566
     . (ALPT    ,A(321))                                                    YAERO   3567
     .,(ALPF    ,A(322))                                                    YAERO   3568
     .,(CMT62   ,A(323))                                                    YAERO   3569
     .,(CMF62   ,A(324))                                                    YAERO   3570
     .,(EPS     ,A(325))                                                    YAERO   3571
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SUBROUTINE AEROYBR    74/175  OPT=2                FTN 4.8+530     82/10/22. 15.12.40      PAGE    3

      EQUIVALENCE                                                     YAERO     3572
     . (AEROX    ,A(326))                                             YAERO     3573
     ., (AEROY    ,A(327))                                            YAERO     3574
     ., (AEROZ    ,A(328))                                            YAERO     3575
     ., (AEROL    ,A(329))                                            YAERO     3576
     ., (AEROM    ,A(330))                                            YAERO     3577
     ., (AERON    ,A(331))                                            YAERO     3578
     ., (S        ,A(332))                                            YAERO     3579
     ., (B        ,A(333))                                            YAERO     3580
     ., (CBAR     ,A(334))                                            YAERO     3581
     ., (CGREF    ,A(341))                                            YAERO     3582
     ., (CMQ      ,A(342))                                            YAERO     3583
     ., (CMALPD   ,A(343))                                            YAERO     3584
      EQUIVALENCE                                                     YAERO     3585
     . (PLIFT    ,A(344))                                             YAERO     3586
     ., (RDRAG    ,A(345))                                            YAERO     3587
     ., (CL       ,A(346))                                            YAERO     3588
     ., (CD       ,A(347))                                            YAERO     3589
     ., (CN       ,A(348))                                            YAERO     3590
     ., (CA       ,A(349))                                            YAERO     3591
     ., (CM       ,A(350))                                            YAERO     3592
     ., (RK4      ,A(351))                                            YAERO     3593
      EQUIVALENCE                                                     YAERO     3594
     . (CNGE     ,A(355))                                             YAERO     3595
     ., (CAGE     ,A(356))                                            YAERO     3596
     ., (CMGE     ,A(357))                                            YAERO     3597
     ., (CNPOWER  ,A(358))                                            YAERO     3598
     ., (CAPOWER  ,A(359))                                            YAERO     3599
     ., (CMPOWER  ,A(360))                                            YAERO     3600
     ., (CYDR     ,A(361))                                            YAERO     3601
     ., (CLLDR    ,A(362))                                            YAERO     3602
     ., (CLNDR    ,A(363))                                            YAERO     3603
     ., (DCDFL    ,A(365))                                            YAERO     3604
     ., (DCDFR    ,A(366))                                            YAERO     3605
      EQUIVALENCE                                                     YAERO     3606
     . (HCLLB    ,A(367))                                             YAERO     3607
     ., (HCYB     ,A(368))                                            YAERO     3608
     ., (CNB      ,A(369))                                            YAERO     3609
     ., (CNDA     ,A(370))                                            YAERO     3610
     ., (HCLLDA   ,A(371))                                            YAERO     3611
     ., (HCYDA    ,A(372))                                            YAERO     3612
     ., (CNDR     ,A(373))                                            YAERO     3613
     ., (HCLLDR   ,A(374))                                            YAERO     3614
     ., (HCYDR    ,A(375))                                            YAERO     3615
     ., (HCLBPOW  ,A(378))                                            YAERO     3616
      EQUIVALENCE                                                     YAERO     3617
     . (CMBASE   ,A(379))                                             YAERO     3618
     ., (CLBASE   ,A(380))                                            YAERO     3619
     ., (CDBASE   ,A(381))                                            YAERO     3620
     ., (HCMPOW   ,A(382))                                            YAERO     3621
     ., (DCLPOW   ,A(383))                                            YAERO     3622
     ., (DCMFL    ,A(384))                                            YAERO     3623
     ., (DCMFR    ,A(385))                                            YAERO     3624
     ., (DCLFL    ,A(386))                                            YAERO     3625
     ., (DCLFR    ,A(387))                                            YAERO     3626
     ., (HCMDA    ,A(388))                                            YAERO     3627
     ., (DCLAL    ,A(389))                                            YAERO     3628
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SUBROUTINE AERQY8B     74/175  OPT=2                    FTN 4.8+538       82/10/22. 15.12.49        PAGE     4

        .,(DCLAR   ,A(390))                                                 YAER0      3629
        .,(DCDAL   ,A(391))                                                 YAER0      3630
        .,(DCDAR   ,A(392))                                                 YAER0      3631
        .,(DCMFJF  ,A(395))                                                 YAER0      3632
        .,(DCMSTAR ,A(396))                                                 YAER0      3633
         EQUIVALENCE                                                        YAER0      3634
        .  (CLSTAR ,A(397))                                                 YAER0      3635
        .,(CDSTAR  ,A(398))                                                 YAER0      3636
        .,(HCDSTOW ,A(399))                                                 YAER0      3637
        .,(CDDW    ,A(400))                                                 YAER0      3638
        .,(CMSTING ,A(401))                                                 YAER0      3639
        .,(HICM    ,A(402))                                                 YAER0      3640
        .,(HICL    ,A(403))                                                 YAER0      3641
        .,(HICD    ,A(404))                                                 YAER0      3642
        .,(HYAW    ,A(405))                                                 YAER0      3643
        .,(HROL    ,A(406))                                                 YAER0      3644
        .,(HLSF    ,A(407))                                                 YAER0      3645
        .,(HIFX    ,A(408))                                                 YAER0      3646
        .,(HIFZ    ,A(409))                                                 YAER0      3647
        .,(HIRM    ,A(410))                                                 YAER0      3648
        .,(HIYM    ,A(411))                                                 YAER0      3649
         EQUIVALENCE                                                        YAER0      3650
        .  (VEQ    ,A(412))                                                 YAER0      3651
        .,(RTHALP  ,A(415))                                                 YAER0      3652
        .,(BETAP   ,A(416))                                                 YAER0      3653
        .,(HP      ,A(417))                                                 YAER0      3654
         EQUIVALENCE                                                        YAER0      3655
        .  (CMGF10 ,A(422))                                                 YAER0      3656
        .,(THALP   ,A(423))                                                 YAER0      3657
        .,(RMTGF   ,A(424))                                                 YAER0      3658
        .,(YMIGF   ,A(425))                                                 YAER0      3659
        .,(SFIGF   ,A(426))                                                 YAER0      3660
        .,(SCALR   ,A(427))                                                 YAER0      3661
         EQUIVALENCE                                                        YAER0      3662
        .  (YDSFTH ,A(430))                                                 YAER0      3663
        .,(YDSFTP  ,A(431))                                                 YAER0      3664
        .,(DYMIP   ,A(432))                                                 YAER0      3665
        .,(DYMBIAS ,A(433))                                                 YAER0      3666
        .,(YK      ,A(434))                                                 YAER0      3667
        .,(DYMPHI  ,A(435))                                                 YAER0      3668
        .,(TERM    ,A(436))                                                 YAER0      3669
        .,(DRMIGE  ,A(437))                                                 YAER0      3670
        .,(DRMPHI  ,A(438))                                                 YAER0      3671
        .,(RK6     ,A(439))                                                 YAER0      3672
        .,(PCS     ,A(440))                                                 YAER0      3673
         EQUIVALENCE                                                        YAER0      3674
        .  (GKCLLP ,A(441))                                                 YAER0      3675
        .,(GKCMP   ,A(442))                                                 YAER0      3676
        .,(CY      ,A(443))                                                 YAER0      3677
        .,(CYBASIC ,A(444))                                                 YAER0      3678
        .,(CYPOWER ,A(445))                                                 YAER0      3679
        .,(CYBASE  ,A(446))                                                 YAER0      3680
        .,(DCYATL  ,A(447))                                                 YAER0      3681
        .,(DCYRUD  ,A(448))                                                 YAER0      3682
        .,(SFOSE   ,A(449))                                                 YAER0      3683
        .,(CLL     ,A(450))                                                 YAER0      3684
        .,(CHOT    ,A(451))                                                 YAER0      3685
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     .,(CHALPDT,A(496))                        YAERO    3686
     .,(DHTD    ,A(503))                       YAERO    3687
     .,(DAL     ,A(505))                       YAERO    3688
     .,(DAR     ,A(506))                       YAERO    3689
     .,(DRUDD   ,A(513))                       YAERO    3690
      EQUIVALENCE                              YAERO    3691
     . (RK7     ,A(514))                       YAERO    3692
     .,(CLLBAS  ,A(520))                       YAERO    3693
     .,(CLLPTWR,A(521))                        YAERO    3694
     .,(CLLBASF,A(522))                        YAERO    3695
     .,(DCLLATL,A(523))                        YAERO    3696
     .,(RK10    ,A(524))                       YAERO    3697
     .,(TEMPX3  ,A(525))                       YAERO    3698
      EQUIVALENCE                              YAERO    3699
     . (CMGEB1  ,A(550))                       YAERO    3700
     .,(CNGE55  ,A(551))                       YAERO    3701
     .,(CAGE55  ,A(552))                       YAERO    3702
     .,(CMGE55  ,A(553))                       YAERO    3703
     .,(DCN60   ,A(557))                       YAERO    3704
     .,(DCM60   ,A(558))                       YAERO    3705
     .,(DCLLRUD,A(560))                        YAERO    3706
     .,(CLLR    ,A(561))                       YAERO    3707
     .,(CLLP    ,A(562))                       YAERO    3708
     .,(DCA60   ,A(569))                       YAERO    3709
      EQUIVALENCE                              YAERO    3710
     . (DCN50   ,A(570))                       YAERO    3711
     .,(DCA50   ,A(571))                       YAERO    3712
     .,(DCM50   ,A(572))                       YAERO    3713
     .,(DCM10   ,A(573))                       YAERO    3714
     .,(RK0     ,A(574))                       YAERO    3715
     .,(RMGE00  ,A(575))                       YAERO    3716
     .,(RM1P2   ,A(576))                       YAERO    3717
     .,(RM4P12  ,A(577))                       YAERO    3718
     .,(RM7P05  ,A(578))                       YAERO    3719
     .,(SFGE60  ,A(598))                       YAERO    3720
     .,(SFGEB1  ,A(599))                       YAERO    3721
     .,(FLAP    ,A(634))                       YAERO    3722
     .,(DFLAPL  ,A(637))                       YAERO    3723
     .,(DFLAPR  ,A(638))                       YAERO    3724
     .,(DNLIB   ,A(639))                       YAERO    3725
      EQUIVALENCE                              YAERO    3726
     . (DCLLF   ,A(709))                       YAERO    3727
     .,(DCLLFJL,A(714))                        YAERO    3728
     .,(RMOGE   ,A(715))                       YAERO    3729
     .,(CYBAT   ,A(724))                       YAERO    3730
     .,(CLLBAT  ,A(725))                       YAERO    3731
     .,(CLN     ,A(726))                       YAERO    3732
     .,(CLNBAS  ,A(727))                       YAERO    3733
     .,(CLNPTWR,A(728))                        YAERO    3734
     .,(CLNBASF,A(729))                        YAERO    3735
     .,(DCLNATL,A(730))                        YAERO    3736
     .,(DCLNRUD,A(731))                        YAERO    3737
     .,(FGTHR   ,A(759))                       YAERO    3738
     .,(THETAJ  ,A(784))                       YAERO    3739
     .,(DNGFAR  ,A(883))                       YAERO    3740
*                                              YAERO    3741
*     DIMENSION STATEMENTS                     YAERO    3742
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*
      DIMENSION
     .CMBAS1T(21),     CNBAS2T(37),     CNFLAPT(120),
     .CNAILT(15),      ALPCT(121),      CNFJIT(52),
     .CNPOWT(528),     CMBAS1T(21),     CMBAS2T(37),
     .CMFLAPT(45),     DCMT(18),        CMAILT(25),
     .EPS1T(48),       EPS2T(32),       RKT(18),
     .RCT(14),         DCMUPT(44),      DCM25T(13),
     .DCM62T(18),      DCMPOWT(504),    CMFJIT(178),
     .CABAS1T(21),     CABAS2T(37),     CAFLAPT(40),
     .CAFJIT(14),      DCAT(10),        RCAT(10),
     .CAAILT(25),      CAPOWT(96),      CA55T(96),
     .CYBAST(16),      DCYHIT(8),       CYPOWT(72)
      DIMENSION
     .CYAILT(104),     CLLBAST(24),     CLLPOWT(72),
     .                 CLLAILT(104),    CLLRT(8),
     .CLLPT(8),        CLNBAST(24),     CLNPOWT(72),
     .DCLNHIT(8),                       CLNAILT(104),
     .CLNRT(8),        CLNPT(8),
     .CNGE81T(220),    CAGF81T(156),    CNGF81T(120),
     .CNGF55T(240),    CAGF55T(240),    CMGF55T(240),
     .DCN50T(60),      DCN60T(60),      DCA50T(60),
     .DCA60T(60),      DCM10T(120),     DCM50T(60),
     .DCM60T(60),
     .
     .                 RKOT(8),         DCNPOWT(48)
      DIMENSION
     .DSFTU(225),      RMBF09U(60),     RMBF60U(60),
     .RMBE81U(210),    RMAF95U(70),     RM2P47U(91),
     .YMTR09U(45),     YMTR69U(45),     YMTR81U(75),
     .SFGF60U(45),     SFGF81U(180),    RMGF60U(120),
     .RMAT81U(210),    RM4P12U(210),    RM7P05U(210),
     .YMGE60U(45),     YMGF81U(180),    YMSF81U(96),
     .YMSF60U(102),    PASF60U(96),     PASF81U(114),
     .SFTP60U(168),    SFTP81U(420),    SFTB60U(96),
     .SFTB81U(228),    DRMP60U(336),    RMP881U(120),
     .DRM89U(80),      DRMP81U(192),    PBYM60U(96),
     .PBYM81U(114),    YMPF69U(96),     YMPE81U(240),
     .YMBS60U(96),     YMBS81U(228)
      DIMENSTON
     .HCMALT(23),      HCMB2T(135),     HCMSTT(640),
     .HCMFT(600),      HCL1T(20),       HCL2T(135),
     .                 CNFJ11T(11),     CNFJ12T(19),
     .CAFJ11T(11),     CAFJ12T(19),     CMFJ11T(11),
     .CNFJ12T(19),     HCLFT(600),      HCLAILT(20),
     .                                  HCMAOT(6),
     .HCMDAT(48),      HCD1T(18),       HCD2T(184),
     .HCDAILT(130),    HCDST(196),      HCDDRT(32),
     .HCMPOWT(1056),HCYOT(5),
     .                                  HCNDAT(256),
     .HCNDRT(48),      HCNRT(24),       HCNPT(18),
     .HCLRT(90),
     .HCLLDAT(256),    HCLLDRT(48),     HCLLRT(30),
     .HCLLPT(30),      HCYBT(16),
     .                 HCYDAT(48),      HCYDRT(48)
      DIMENSTAN
     .HCYRT(6),
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       .                                                          YAERO     3800
       .                                                          YAERO     3801
       .                                                          YAERO     3802
       .                                                          YAERO     3803
       .HCLAFT(90),                                               YAERO     3804
       .HCNBHT(90),                                               YAERO     3805
       .                         HCDFT(450),                      YAERO     3806
       .DCMFJIT(4)                                                YAERO     3807
  *                                                               YAERO     3808
        DIMENSION                                                 YAERO     3809
       .A(1000)                                                   YAERO     3810
       .,TEMP(3)                                                  YAERO     3811
        DIMENSION                                                 YAERO     3812
       .NPT1(2), NPT2(3), NPT3(2), NPT4(3), NPT5(2),              YAERO     3813
       .NPT6(2), NPT7(3), NPT8(2), NPT9(3), NPT10(2),             YAERO     3814
       .NPT11(3), NPT12(2), NPT13(2), NPT14(3), NPT15(3),         YAERO     3815
       .NPT16(2), NPT17(3), NPT18(2), NPT19(2), NPT20(2)          YAERO     3816
        DIMENSION                                                 YAERO     3817
       .NPT21(2), NPT22(2), NPT23(2), NPT24(3), NPT25(2),         YAERO     3818
       .NPT26(2), NPT27(3), NPT28(2), NPT29(2), NPT30(2),         YAERO     3819
       .NPT31(3), NPT32(3), NPT33(3), NPT34(3), NPT35(3),         YAERO     3820
       .NPT36(3), NPT37(3), NPT38(3), NPT39(3), NPT40(3),         YAERO     3821
       .NPT41(3), NPT42(3), NPT43(2), NPT44(3), NPT45(3),         YAERO     3822
       .NPT46(3), NPT47(2), NPT48(3), NPT49(3), NPT50(3),         YAERO     3823
       .NPT51(2), NPT52(2), NPT53(2), NPT54(3), NPT55(3),         YAERO     3824
       .NPT56(3), NPT57(2), NPT58(3), NPT59(3), NPT60(2),         YAERO     3825
       .NPT61(2), NPT62(2), NPT63(2)                              YAERO     3826
        DIMENSION                                                 YAERO     3827
       .BND1(2), BND2(2), BND3(4), BND4(6), BND5(4),              YAERO     3828
       .BND6(6), BND7(4), BND8(4), BND9(6), BND10(4),             YAERO     3829
       .BND11(6), BND12(4), BND13(6), BND14(4), BND15(4),         YAERO     3830
       .BND16(4), BND17(6), BND18(6), BND19(4), BND20(2),         YAERO     3831
       .BND21(6), BND22(2), BND23(4), BND24(4), BND25(4)          YAERO     3832
        DIMENSION                                                 YAERO     3833
       .BND26(4), BND27(4), BND28(6), BND29(4), BND30(6),         YAERO     3834
       .BND31(4), BND32(4), BND33(4), BND34(6), BND35(6),         YAERO     3835
       .BND36(6), BND37(4), BND38(6), BND39(6), BND40(6),         YAERO     3836
       .BND41(6), BND42(6), BND43(5), BND44(6), BND45(6),         YAERO     3837
       .BND46(4), BND47(2), BND52(4)                              YAERO     3838
        DIMENSION                                                 YAERO     3839
       .BND53(2), BND55(2), BND56(2), BND59(4), BND60(6),         YAERO     3840
       .BND61(6), BND62(6), BND63(6), BND64(6), BND65(6),         YAERO     3841
       .BND66(4), BND67(6), BND68(6), BND69(6), BND70(4),         YAERO     3842
       .BND71(4), BND72(6), BND73(6), BND74(4), BND75(4),         YAERO     3843
       .BND76(6), BND77(4), BND78(4), BND79(4), BND80(4),         YAERO     3844
       .BND81(6)                                                  YAERO     3845
        DIMENSION                                                 YAERO     3846
       .BRK1(11), BRK2(11), BRK3(3),                              YAERO     3847
       .BRK4(12), BRK5(20), BRK6(26),                             YAERO     3848
       .BRK7(4),  BRK8(7),  BRK9(3),                              YAERO     3849
       .BRK10(3), BRK11(5), BRK12(3),                             YAERO     3850
       .BRK13(5), BRK14(4), BRK15(3),                             YAERO     3851
       .BRK16(4), BRK17(5), BRK18(8)                              YAERO     3852
        DIMENSION                                                 YAERO     3853
       .BRK19(23), BRK20(10), BRK22(8),                           YAERO     3854
       .BRK25(20), BRK28(4),  BRK29(8),                           YAERO     3855
       .BRK30(23), BRK31(9),  BRK32(5),                           YAERO     3856
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     .BRK33(4),   BRK34(4),   BRK35(10),                          YAERO    3857
     .BRK36(12),  BRK37(9),   BRK38(8),                           YAERO    3858
     .BRK39(6),   BRK40(6),   BRK41(5),                           YAERO    3859
     .BRK42(6),   BRK44(4),   BRK48(6)                            YAERO    3860
      DATA                                                        YAERO    3861
     .NPT1/11,11/, NPT2/9,5,3/, NPT3/5,3/,                        YAERO    3862
     .NPT4/6,11,8/, NPT5/4,13/, NPT6/9,5/,                        YAERO    3863
     .NPT7/3,2,3/, NPT8/8,5/, NPT9/8,2,2/,                        YAERO    3864
     .NPT10/9,2/, NPT11/11,2,2/, NPT12/7,2/,                      YAERO    3865
     .NPT13/5,5/, NPT14/8,7,3/, NPT15/11,8,2/,                    YAERO    3866
     .NPT16/8,6/, NPT17/4,12,2/, NPT18/8,12/                      YAERO    3867
      DATA                                                        YAERO    3868
     .NPT19/8,2/, NPT20/9,8/, NPT21/8,13/,                        YAERO    3869
     .NPT22/11,20/, NPT23/6,20/, NPT24/5,12,4/,                   YAERO    3870
     .NPT25/3,3/, NPT26/15,4/, NPT27/10,7,3/,                     YAERO    3871
     .NPT28/13,7/, NPT29/15,3/, NPT30/15,5/,                      YAERO    3872
     .NPT31/15,3,5/, NPT32/21,4,4/, NPT33/10,4,3/,                YAERO    3873
     .NPT34/10,4,2/, NPT35/16,4,3/,NPT36/16,3,2/,                 YAERO    3874
     .NPT37/17,3,2/, NPT38/19,3,2/, NPT39/21,4,2/,                YAERO    3875
     .NPT40/16,3,5/, NPT41/21,4,5/, NPT42/19,3,4/,                YAERO    3876
     .NPT43/6,26/, NPT44/5,12,2/, NPT45/15,4,2/,                  YAERO    3877
     .NPT46/15,3,4/, NPT47/15,9/, NPT48/10,8,8/                   YAERO    3878
      DATA                                                        YAERO    3879
     .NPT49/15,5,9/, NPT50/8,11,12/, NPT51/6,9/,                  YAERO    3880
     .NPT52/5,4/, NPT53/9,23/, NPT54/15,5,6/,                     YAERO    3881
     .NPT55/9,5,4/, NPT56/7,7,4/, NPT57/8,4/,                     YAERO    3882
     .NPT58/6,15,2/, NPT59/4,8,8/, NPT60/6,4/,                    YAERO    3883
     .NPT61/6,3/, NPT62/6,5/, NPT63/6,8/                          YAERO    3884
      DATA                                                        YAERO    3885
     .BND1/-180.,180./,                                           YAERO    3886
     .BND2/-10.,30./,                                             YAERO    3887
     .BND3/0.,100.,.05,1.0/,                                      YAERO    3888
     .BND4/-5.,30.,0.,80.,0.,100./,                               YAERO    3889
     .BND5/-30.,30.,-4.,24./,                                     YAERO    3890
     .BND6/0.,100.,.05,1.0,-4.,24./,                              YAERO    3891
     .BND7/-4.,26.,0.1,0.7/,                                      YAERO    3892
     .BND8/-4.,28.,0.,80./,                                       YAERO    3893
     .BND9/-4.,24.,.15,.40,0.,61.7/,                              YAERO    3894
     .BND10/-4.,24.,0.,1./,                                       YAERO    3895
     .BND11/-4.,24.,0.3,1.0,25.,61.7/,                            YAERO    3896
     .BND12/0.,0.8,0.,10./,                                       YAERO    3897
     .BND13/-25.,25.,8.,16.,0.4,1.0/,                             YAERO    3898
     .BND14/-40.,0.,0.3,1.0/,                                     YAERO    3899
     .BND15/0.,24.,0.3,1.0/,                                      YAERO    3900
     .BND16/-30.,30.,-4.,28./,                                    YAERO    3901
     .BND17/-4.,24.,.05,.65,0.,60./,                              YAERO    3902
     .BND18/.05,1.,-4.,24.,0.,10./                                YAERO    3903
      DATA                                                        YAERO    3904
     .BND19/-4.,24.,0.,80./,                                      YAERO    3905
     .BND20/.08,.44/,                                             YAERO    3906
     .BND21/12.,24.,.05,.4,0.,10./,                               YAERO    3907
     .BND22/.05,.7/,                                              YAERO    3908
     .BND23/-4.,24.,.05,.9/,                                      YAERO    3909
     .BND24/-4.,24.,0.,25./,                                      YAERO    3910
     .BND25/0.,0.4,-4.,24./,                                      YAERO    3911
     .BND26/-4.,24.,-30.,30./,                                    YAERO    3912
     .BND27/-4.,16.,0.,64./,                                      YAERO    3913
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     .BND28/-4.,12.,0.,22.,0.1,0.25/,                              YAERO     3914
     .BND29/-4.,24.,0.,.247/,                                      YAERO     3915
     .BND30/0.,90.,-4.,24.,.025,.077/,                             YAERO     3916
     .BND31/0.,45.,-4.,24./,                                       YAERO     3917
     .BND32/0.,24.,-4.,24./,                                       YAERO     3918
     .BND33/-4.,24.,.05,.247/,                                     YAERO     3919
     .BND34/-4.,24.,0.,81.,0.,.247/,                               YAERO     3920
     .BND35/-4.,24.,1.2,70.,.05,.096/,                             YAERO     3921
     .BND36/0.,90.,-4.,24.,.025,.077/                              YAERO     3922
      DATA                                                         YAERO     3923
     .BND37/-4.,24.,1.2,7.05/,                                     YAERO     3924
     .BND38/-10.,10.,0.,30.,1.2,70./,                              YAERO     3925
     .BND39/0.,190.,1.2,70.,0.,.05/,                               YAERO     3926
     .BND40/0.,180.,1.2,70.,.025,.05/,                             YAERO     3927
     .BND41/0.,15.,1.2,70.,0.,.05/,                                YAERO     3928
     .BND42/0.,15,1.2,7.05,0.,1./,                                 YAERO     3929
     .BND43/0.,16,1.2,7.05,0.,1./,                                 YAERO     3930
     .BND44/0.,30.,1.2,7.05,.05,.095/,                             YAERO     3931
     .BND45/0.,20.,1.2,70.,.05,.096/,                              YAERO     3932
     .BND46/-4.,24.,0.,61.7/,                                      YAERO     3933
     .BND47/0.0,12.0/,                                             YAERO     3934
     .BND52/-30.,20.,-4.,24./,                                     YAERO     3935
     .BND53/.5,1.0/                                                YAERO     3936
      DATA                                                         YAERO     3937
     .BND55/6.,24./,                                               YAERO     3938
     .BND56/6.0,42.0/,                                             YAERO     3939
     .BND59/-4.,24.,.025,.247/,                                    YAERO     3940
     .BND60/0.,180.,1.2,7.05,.025,.05/,                            YAERO     3941
     .BND61/0.,15.,1.2,7.05,.05,.096/,                             YAERO     3942
     .BND62/0.,15.,1.2,7.05,0.0,.096/,                             YAERO     3943
     .BND63/0.,180.,1.2,7.05,.025,.096/,                           YAERO     3944
     .BND64/-4.,12.,0.,22.,.15,.20/,                               YAERO     3945
     .BND65/-4.,24.,1.2,7.05,.025,.096/,                           YAERO     3946
     .BND66/-4.,24.,.5,1.05/,                                      YAERO     3947
     .BND67/-13.5,13.5,-4.,24.,.5,1.2/,                            YAERO     3948
     .BND68/-4.,24.,5.,25.,.5,.95/,                                YAERO     3949
     .BND69/-4.,24.,.05,1.05,0.,100./,                             YAERO     3950
     .BND70/-30.,30.,.65,1.2/,                                     YAERO     3951
     .BND71/.5,1.2,-.35,1.2/,                                      YAERO     3952
     .BND72/-30.,15.,.65,1.2,0.,12./                               YAERO     3953
      DATA                                                         YAERO     3954
     .BND73/0.,24.,-12.,12.,.5,.9/,                                YAERO     3955
     .BND74/-4.,24.,.65,.95/,                                      YAERO     3956
     .BND75/.5,1.05,-4.,24./,                                      YAERO     3957
     .BND76/.65,.95,-4.,24.,-30.,20./,                             YAERO     3958
     .BND77/.65,1.2,-4.,24./,                                      YAERO     3959
     .BND78/.5,1.2,0.,24./,                                        YAERO     3960
     .BND79/.5,1.2,0.,9./,                                         YAERO     3961
     .BND80/.5,1.2,-4.,24./,                                       YAERO     3962
     .BND81/.5,1.05,-4.,24.,.5,.10./                               YAERO     3963
      DATA                                                         YAERO     3964
     .BRK1/.05,.1,.15,.2,.25,.3,.35,.4,.45,.5,1.0/,                YAERO     3965
     .BRK2/.05,.1,.15,.2,.25,.3,.4,.5,.6,.8,1.0/,                  YAERO     3966
     .BRK3/0.,.25,.61.7/,                                          YAERO     3967
     .BRK4/.05,.1,.15,.2,.25,.3,.35,.4,.5,.6,.7,.8/,               YAERO     3968
     .BRK5/0.,1.,2.,3.,4.,5.,6.,7.,8.,9.,10.,11.,12.,13.,14.,24.,34.,YAERO   3969
     .44.,54.,64./,                                                YAERO     3970
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     .BRK6/0.,1.,2.,3.,4.,5.,6.,7.,8.,9.,10.,11.,12.,16.,20.,24.,28.,   YAERO     3971
     .32.,36.,40.,44.,48.,52.,56.,60.,64./                              YAERO     3972
      DATA                                                              YAERO     3973
     .BRK7/0.,.05,.096,.247/,                                           YAERO     3974
     .BRK8/-4.,2.,8.,10.,16.,20.,24./,                                  YAERO     3975
     .BRK9/.025,.05,.077/,                                              YAERO     3976
     .BRK10/.05,.096,.247/,                                             YAERO     3977
     .BRK11/.025,.05,.077,.096,.247/,                                   YAERO     3978
     .BRK12/0.,.60,.81./,                                               YAERO     3979
     .BRK13/0.,.025,.05,.096,.247/,                                     YAERO     3980
     .BRK14/1.2,4.12,7.05,70.0/,                                        YAERO     3981
     .BRK15/1.2,4.12,7.05/,                                             YAERO     3982
     .BRK16/.025,.05,.077,.096/,                                        YAERO     3983
     .BRK17/0.,.025,.051,.077,.096/                                     YAERO     3984
      DATA                                                              YAERO     3985
     .BRK18/.5,.65,.8,.85,.9,.95,1.05,1.2/,                             YAERO     3986
     .BRK19/-180.,-160.,-140.,-120.,-100.,-90.,-80.,-60.,-40.,-20.,     YAERO     3987
     .-10.,0.,20.,30.,40.,60.,80.,90.,100.,120.,140.,160.,180./,        YAERO     3988
     .BRK20/-13.5,-10.5,-7.5,-4.5,-1.5,1.5,4.5,7.5,10.5,13.5/,          YAERO     3989
     .BRK22/.5,.58,.65,.75,.8,.85,.9,.95/,                              YAERO     3990
     .BRK25/-180.,-160.,-140.,-120.,-90.,-80.,-60.,-40.,-20.,-10.,30.,  YAERO     3991
     .40.,60.,80.,90.,100.,120.,140.,160.,180./,                        YAERO     3992
     .BRK28/.65,.8,.9,1.2/,                                             YAERO     3993
     .BRK29/.5,.65,.8,.85,.9,.95,1.0,1.2/,                              YAERO     3994
     .BRK30/-.35,-.3,-.25,-.2,-.15,-.1,-.05,0.,.05,.1,.15,.2,.25,.3,    YAERO     3995
     .,35,.4,.45,.5,.6,.7,.8,1.,1.2/                                    YAERO     3996
      DATA                                                              YAERO     3997
     .BRK31/-30.,-20.,-15.,-10.,-5.,0.,5.,10.,15./,                     YAERO     3998
     .BRK32/.65,.8,.9,.95,1.2/,                                         YAERO     3999
     .BRK33/.5,.65,.8,.9/,                                              YAERO     4000
     .BRK34/.65,.8,.9,.95/,                                             YAERO     4001
     .BRK35/-180.,-160.,-140.,-120.,-100.,-80.,-60.,-40.,-20.,-10.,     YAERO     4002
     .40.,60.,80.,100.,120.,140.,160.,180./,                            YAERO     4003
     .BRK36/0.,5.,10.,20.,30.,40.,50.,60.,70.,80.,90.,100./             YAERO     4004
      DATA                                                              YAERO     4005
     .BRK37/.5,.58,.65,.75,.8,.85,.9,.95,1.05/,                         YAERO     4006
     .BRK38/-30.,-20.,-10.,-5.,0.,5.,10.,20./,                          YAERO     4007
     .BRK39/.65,.8,.9,.95,1.05,1.2/,                                    YAERO     4008
     .BRK40/.5,.6,.7,.8,.9,1.2/,                                        YAERO     4009
     .BRK41/.5,.65,.8,.9,1.2/,                                          YAERO     4010
     .BRK42/.5,.65,.75,.85,.95,1.05/,                                   YAERO     4011
     .BRK44/0.,4.,8.,24./,                                              YAERO     4012
     .BRK48/.5,.65,.8,.85,.9,.95/                                       YAERO     4013
*                                                                       YAERO     4014
*     COMPUTATIONS                                                      YAERO     4015
*                                                                       YAERO     4016
      IF(INITIAL.EQ.0) GO TO 1                                          YAERO     4017
      GKCLLP = 1.42                                                     YAERO     4018
      RK4 = 1.0                                                         YAERO     4019
      RK6=0.3                                                           YAERO     4020
      RK7 = 1.0                                                         YAERO     4021
      B=30.33                                                           YAERO     4022
      CHAR=4.316                                                        YAERO     4023
      S=230.0                                                           YAERO     4024
      CGREF=0.103                                                       YAERO     4025
      DE=2.92                                                           YAERO     4026
      CYDR=.0033                                                        YAERO     4027
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SUBROUTINE AEROYAB     74/175  OPT=2                FTN 4.8+?38       82/10/22. 15.12.40       PAGE   11

      CLLOR=.00035                                                  YAERO    4028
      CLNDR=-.0017                                                  YAERO    4029
      SCALR=1.0                                                     YAERO    4030
      HCLRPIW=-.0003                                                YAERO    4031
      RC5=1.                                                        YAERO    4032
    1 CONTINUE                                                      YAERO    4033
*                                                                   YAERO    4034
*                                                                   YAERO    4035
*                                                                   YAERO    4036
      CO2V=CBAR/(2.*VT)                                             YAERO    4037
      PSTAB=P*COSALP+R*SINALP                                       YAERO    4038
      RSTAB=R*COSALP-P*SINALP                                       YAERO    4039
      IF(FGTHR.LE.10.0) FGTHR=10.0                                  YAERO    4040
      VEQ=SQRT((13.0*QBAR)/FGTHR)                                   YAERO    4041
      TEMPX1=0.25*CBAR*RHO*ABS(VT)*S                                YAERO    4042
      TEMPX2=TEMPX1*CBAR                                            YAERO    4043
      RK10=-0.02*UKTS+1.0                                           YAERO    4044
      RK10=AMIN1(1.0,AMAX1(RK10,0.))                                YAERO    4045
      UKTS=U/1.6878                                                 YAERO    4046
      RK11=0.1*UKTS-2.0                                             YAERO    4047
      RK11=AMIN1(1.0,AMAX1(RK11,0.))                                YAERO    4048
      TEMPX3=RHO*ABS(Q)*Q*RK10*1000000.*RK4                         YAERO    4049
      TEMPX4=0.25*RHO*B*B*S*ABS(VT)                                 YAERO    4050
      TEMPX5=2.*1000000.*RHO*P*ABS(P)*RK10*RK7                      YAERO    4051
      TEMPX6=200000.*RHO*R*ABS(R)*RK10                              YAERO    4052
      QS=QBAR*S                                                     YAERO    4053
      QSC=QS*CBAR                                                   YAERO    4054
      QSB=QS*B                                                      YAERO    4055
      RK1=THETA1/12.                                                YAERO    4056
      RK1=AMIN1(1.0,AMAX1(RK1,0.))                                  YAERO    4057
      RK2=DELAPL*0.1                                                YAERO    4058
      RK3=DELAPR*0.1                                                YAERO    4059
      RK2=AMIN1(2.5,AMAX1(RK2,1.5))                                 YAERO    4060
      RK3=AMIN1(2.5,AMAX1(RK3,1.5))                                 YAERO    4061
      IF(RMACH.GE.0.50) GO TO 900                                   YAERO    4062
      CMO=-9.32                                                     YAERO    4063
      CMALP0=-7.213                                                 YAERO    4064
*                                                                   YAERO    4065
*     GROUND EFFECT CONSTANTS                                       YAERO    4066
*                                                                   YAERO    4067
      RTHALP=(VEQ-.05)*20.                                          YAERO    4068
      RTHALP=AMIN1(1.,AMAX1(RTHALP,0.))                             YAERO    4069
      THALP=ALP*RTHALP+THA*(1.-RTHALP)                              YAERO    4070
      IF(VEQ.LE.0.05) THALP=THA                                     YAERO    4071
      IF(VEQ.GE.0.10) THALP=ALP                                     YAERO    4072
      VET=VEQ                                                       YAERO    4073
      IF(VEQ.GT.0.247) VET=0.247                                    YAERO    4074
      THALP=AMIN1(40.,AMAX1(THALP,-40.))                            YAERO    4075
      CTHALP=COS(THALP*DTOR)                                        YAERO    4076
*                                                                   YAERO    4077
      VP=V*COSPHI                                                   YAERO    4078
      UP=U/CTHALP                                                   YAERO    4079
      BETAP=ATAN2(VP,UP)                                            YAERO    4080
      BETAP=BETAP*RTOD                                              YAERO    4081
      IF((V.EQ.0.0).A.(UP.GE.0.0)) BETAP=0.0                        YAERO    4082
      IF((V.EQ.0.0).A.(UP.LT.0.0)) BETAP=180.0                      YAERO    4083
      ADFTAP=ABS(BETAP)                                             YAERO    4084
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      SBETAP=SIGN(1.0,BETAP)                                          YAERO   4085
      SINBP=SIN(BETAP*DTOR)                                           YAERO   4086
      BETAPP=BETAP                                                    YAERO   4087
      IF(BETAP.GE.90.) BETAPP=180.-BETAP                              YAERO   4088
      IF(BETAP.LE.-90.) BETAPP=-180.-BETAP                            YAERO   4089
*                                                                     YAERO   4090
      HP=H+(16.422*COS((THALP-.4)*DTOR)) -24.898-25.67*(1.-COSPHI)    YAERO   4091
*                                                                     YAERO   4092
*                                                                     YAERO   4093
*     LAT.-DIR. CONSTANTS (OUT OF G.F.)                               YAERO   4094
*                                                                     YAERO   4095
      RVE0025=VET/.025                                                YAERO   4096
      RVE0025=AMIN1(1.,AMAX1(RVE0025,0.))                             YAERO   4097
      RBP140=1.0-((ABETAP-90.)/90.)                                   YAERO   4098
      RBP140=AMIN1(1.,AMAX1(RBP140,0.))                               YAERO   4099
      RVE77=1.0-((VET-.077)/.019)                                     YAERO   4100
      RVE77=AMIN1(1.,AMAX1(RVE77,0.))                                 YAERO   4101
      IF(VEQ.LE.0.096) RVE96=(VET-.077)/.019                          YAERO   4102
      IF(VEQ.GT.0.096) RVE96=1.0-((VET-.096)/.151)                    YAERO   4103
      RVE96=AMIN1(1.,AMAX1(RVE96,0.))                                 YAERO   4104
      RBP45=1.0-((ABETAP-45.)/135.)                                   YAERO   4105
      RBP45=AMIN1(1.,AMAX1(RBP45,0.))                                 YAERO   4106
      RVE247=(VET-.096)/.151                                          YAERO   4107
      RVE247=AMIN1(1.,AMAX1(RVE247,0.))                               YAERO   4108
      RBP24=1.0-((ABETAP-24.)/156.)                                   YAERO   4109
      RBP24=AMIN1(1.,AMAX1(RBP24,0.))                                 YAERO   4110
      RTJ00=1.0-(THETAJ/60.)                                          YAERO   4111
      RTJ00=AMIN1(1.,AMAX1(RTJ00,0.))                                 YAERO   4112
      IF(THETAJ.LE.60.) RTJ60=THETAJ/60.                              YAERO   4113
      IF(THETAJ.GT.60.) RTJ60=1.0-(THETAJ-60.)/21.                    YAERO   4114
      RTJ60=AMIN1(1.,AMAX1(RTJ60,0.))                                 YAERO   4115
      RTJ81=(THETAJ-60.)/21.                                          YAERO   4116
      RTJ81=AMIN1(1.,AMAX1(RTJ81,0.))                                 YAERO   4117
*                                                                     YAERO   4118
*     LAT.-DIR. CONSTANTS (IN G.F.)                                   YAERO   4119
*                                                                     YAERO   4120
      RHP120=1.0-((HP-1.20)/2.92)                                     YAERO   4121
      RHP120=AMIN1(1.,AMAX1(RHP120,0.))                               YAERO   4122
      IF(HP.LE.4.12) RHP412=(HP-1.20)/2.92                            YAERO   4123
      IF(HP.GT.4.12) RHP412=1.0-((HP-4.12)/2.93)                      YAERO   4124
      RHP412=AMIN1(1.,AMAX1(RHP412,0.))                               YAERO   4125
      IF(HP.LE.7.05) RHP705=(HP-4.12)/2.93                            YAERO   4126
      IF(HP.GT.7.05) RHP705=1.0-((HP-7.05)/62.95)                     YAERO   4127
      RHP705=AMIN1(1.,AMAX1(RHP705,0.))                               YAERO   4128
      RHP7P70=1.0-((HP-7.05)/62.95)                                   YAERO   4129
      RHP7P70=AMIN1(1.,AMAX1(RHP7P70,0.))                             YAERO   4130
      RVE577=1.0-(VET-.05)/.027                                       YAERO   4131
      RVE577=AMIN1(1.,AMAX1(RVE577,0.))                               YAERO   4132
      RBP90=1.0-((ABETAP-90.)/90.)                                    YAERO   4133
      RBP90=AMIN1(1.,AMAX1(RBP90,0.))                                 YAERO   4134
*                                                                     YAERO   4135
*     LAT.-DIR PHI BIAS CONSTANTS                                     YAERO   4136
*                                                                     YAERO   4137
      RVE7796=RVE77+RVE96                                             YAERO   4138
      PHIP=PHI                                                        YAERO   4139
      RTJ06=RTJ00+RTJ60                                               YAERO   4140
      RBP30=1.0-((ABETAP-30.))/150.)                                  YAERO   4141
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      RBP30=AMIN1(1.,AMAX1(RBP30,0.))
*
* THIS SECTION COMPUTES THE BASIC LOW SPEED AERO COEFFICIENTS
*
*     LONGITUDINAL AERO COEFFICIENTS
*
*         BASELINE (5 PYLONS AND GUNPODS)
*
      IF(ALP.GE.-10.0.A.ALP.LE.30.0) GO TO 100
      CNBASE=F1A(ALP,37,BND1,CNBAS2T)
      CMBASE=F1B(ALP,37,BND1,CMBAS2T)
      CABASE=F1B(ALP,37,BND1,CABAS2T)
      GO TO 101
  100 CNBASE=F1A(ALP,21,BND2,CNBAS1T)
      CMBASE=F1B(ALP,21,BND2,CMBAS1T)
      CABASE=F1B(ALP,21,BND2,CABAS1T)
*
*         FLAP INCREMENTS
*
  101 IF(DFLAPL.EQ.0.0.A.DFLAPR.EQ.0.0) GO TO 102
      TEMP(1)=THETAJ
      TEMP(2)=VEQ
      CALL FCALC(TEMP(1),BND3(1),NPT1(1),1)
      CALL FSRCH(TEMP(2),BRK1(1),NPT1(2),IPREV1,2)
      DALPC=F2C(TEMP,NPT1,BND3,ALPCT)
      ALPC=ALP+DALPC
*  NORMAL FORCE COEFFICIENT -- FLAPS
      TEMP(1)=ALPC
      TEMP(2)=DFLAPR
      TEMP(3)=THETAJ
      CNFLAPR=F3A(TEMP,NPT2,BND4,CNFLAPT)
      TEMP(2)=DFLAPL
      CNFLAPL=F3A(TEMP,NPT2,BND4,CNFLAPT)
      CNFLAP=CNFLAPL+CNFLAPR
*  PITCHING MOMENT COEFFICIENT -- FLAPS
      CMFLAL=F2A(TEMP,NPT5,BND8,CMFLAPT)
      TEMP(2)=DFLAPR
      CMFLAR=F2A(TEMP,NPT6,BND8,CMFLAPT)
      CMFLAP=CMFLAL+CMFLAR
      XTEMP=(THETAJ-25.)/25.
      XTEMP=AMIN1(1.,AMAX1(XTEMP,0.))
      TEMP(1)=ALP
      TEMP(2)=VEQ
      TEMP(3)=DFLAPR
      CALL FCALC(TEMP(1),BND9(1),NPT7(1),1)
      CALL FCALC(TEMP(2),BND9(3),NPT7(2),2)
      CALL FSRCH(TEMP(3),BRK3(1),NPT7(3),IPREV4,3)
      DCMR=F3D(TEMP,NPT7,BND9,DCMT)
      TEMP(3)=DFLAPL
      CALL FSRCH(TEMP(3),BRK3(1),NPT7(3),IPREV5,3)
      DCML=F3D(TEMP,NPT7,BND9,DCMT)
      XTEMP1 = (1.0 - VEQ)/.6
      XTEMP1=AMIN1(1.,AMAX1(XTEMP1,0.))
      CMFLAP = CMFLAP +(DCMR+DCML)*XTEMP*XTEMP1
*  AXIAL FORCE COEFFICIENT -- FLAPS
      TEMP(2)=DFLAPR
      CAFLAPR=F2A(TEMP,NPT8,BND10,CAFLAPT)
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SUBROUTINE AERDYBB    74/175  OPT=2                    FTN 4.8+538        82/10/22. 15.12.40        PAGE   14

          TEMP(2)=DFLAPL                                                      YAERO    4199
          CAFLAPL=F2A(TEMP,NPT8,BND19,CAFLAPT)                                YAERO    4200
          CAFLAP=CAFLAPR+CAFLAPL                                              YAERO    4201
          DCA=F1A(VEQ,10,BND20,DCAT)                                          YAERO    4202
          RCA=F1B(VEQ,10,BND20,RCAT)                                          YAERO    4203
          IF(ALP.LT.-4.0) RKPRIME=1.-0.333*RCA                                YAERO    4204
          IF(ALP.GE.-4.0.A.ALP.LE.12.0) RKPRIME=1.+ALP*.0833*RCA              YAERO    4205
          IF(ALP.GT.12.0) RKPRIME=1.+RCA                                      YAERO    4206
          DCAL=DCA*RKPRIME*(DFLAPL/61.7)                                      YAERO    4207
          DCAR=DCA*RKPRIME*(DFLAPR/61.7)                                      YAERO    4208
          DCA=DCAL+DCAR                                                       YAERO    4209
          CAFLAP=CAFLAP+DCA                                                   YAERO    4210
          GO TO 103                                                           YAERO    4211
*                                                                             YAERO    4212
      102 CNFLAP=0.0                                                          YAERO    4213
          CMFLAP=0.0                                                          YAERO    4214
          CAFLAP=0.0                                                          YAERO    4215
*                                                                             YAERO    4216
*             AILERON INCREMENTS                                              YAERO    4217
*                                                                             YAERO    4218
*  NORMAL FORCE COEFFICIENT -- AILERON                                        YAERO    4219
      103 TEMP(1)=DAL                                                         YAERO    4220
          TEMP(2)=ALP                                                         YAERO    4221
          CNAILL=F2A(TEMP,NPT3,BND5,CNAILT)                                   YAERO    4222
          TEMP(1)=DAR                                                         YAERO    4223
          CALL FCALC(TEMP(1),BND5(1),NPT3(1),1)                               YAERO    4224
          CNAILR=F2C(TEMP,NPT3,BND5,CNAILT)                                   YAERO    4225
          DCNAIL=CNAILL+CNAILR                                                YAERO    4226
*  PITCHING MOMENT AND AXIAL COEFFICIENTS -- AILERON                          YAERO    4227
          CMAILR=F2A(TEMP,NPT13,BND16,CMAILT)                                 YAERO    4228
          CAAILR=F2C(TEMP,NPT13,BND16,CAAILT)                                 YAERO    4229
          TEMP(1)=DAL                                                         YAERO    4230
          CALL FCALC(TEMP(1),BND16(1),NPT13(1),1)                             YAERO    4231
          CMAILL=F2C(TEMP,NPT13,BND16,CMAILT)                                 YAERO    4232
          CAAILL=F2C(TEMP,NPT13,BND16,CAAILT)                                 YAERO    4233
          DCMAIL=CMAILR+CMAILL                                                YAERO    4234
          DCAAIL=CAAILR+CAAILL                                                YAERO    4235
*                                                                             YAERO    4236
*             STABILATOR,DAMPING,GEAR AND LID INCREMENTS                      YAERO    4237
*                                                                             YAERO    4238
*                                                                             YAERO    4239
*         LOW SPEED TAIL AOA CALCULATIONS                                     YAERO    4240
*                                                                             YAERO    4241
          YTEMP=DFLAPL                                                        YAERO    4242
          IF(DFLAPR.GT.DFLAPL) YTEMP=DFLAPR                                   YAERO    4243
          IF(YTEMP.GE.25.0) GO TO 108                                         YAERO    4244
          TEMP(1)=ALP                                                         YAERO    4245
          TEMP(2)=VEQ                                                         YAERO    4246
          EPS1=F2A(TEMP,NPT16,BND10,EPS1T)                                    YAERO    4247
          IF(YTEMP.EQ.0.0) GO TO 109                                          YAERO    4248
          TEMP(3)=25.0                                                        YAERO    4249
          EPS2=F3A(TEMP,NPT9,BND11,EPS2T)                                     YAERO    4250
          EPS=(EPS1-EPS2)*(25.-YTEMP)/25.+EPS2                                YAERO    4251
          GO TO 110                                                           YAERO    4252
      109 EPS=EPS1                                                            YAERO    4253
          GO TO 110                                                           YAERO    4254
      108 TEMP(1)=ALP                                                         YAERO    4255
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      TEMP(2)=VEQ
      TEMP(3)=YTEMP
      EPS=F3A(TEMP,NPT9,BND11,EPS2T)
  110 CONTINUE
      ALPT=ALP+DHID-EPS
      ALPF=ALP+2.0-EPS
*
*     P.M. DUE TO STABILATOR
*
      IF(YTEMP.GE.25.0) GO TO 122
      TEMP(1)=VEQ
      TEMP(2)=THETAJ
      RK=F2A(TEMP,NPT10,BND12,RKT)
      TEMP(3)=VEQ
      IF(THETAJ.GE.10.0) TEMP(3)=1.0
      TEMP(1)=ALPT
      TEMP(2)=ALP
      CMTUP=F3A(TEMP,NPT11,BND13,DCMUPT)
      TEMP(1)=ALPF
      CALL FCALC(TEMP(1),BND13(1),NPT11(1),1)
      CMFUP=F3D(TEMP,NPT11,BND13,DCMUPT)
      CMTUP=RK*CMTUP
      CMFUP=RK*CMFUP
      IF(YTEMP.LE.0.0) DCMSTAB=CMTUP-CMFUP
      IF(YTEMP.LE.0.0) GO TO 120
  122 IF(YTEMP.GE.61.7) GO TO 121
      CMT25=F1A(ALPT,1,BND5(1),DCM25T)
      CMF25=F1A(ALPF,1,BND5(1),DCM25T)
      IF(YTEMP.GT.25.1) GO TO 121
      CMSTUP=CMTUP-CMFUP
      CMST25=CMT25-CMF25
      DCMSTAB=(CMSTUP-CMST25)*(25.-YTEMP)/25.+CMST25
      GO TO 120
  121 CONTINUE
      TEMP(1)=ALPT
      TEMP(2)=VEQ
      CMT62=F2A(TEMP,NPT10,BND14,DCM62T)
      TEMP(1)=ALPF
      CALL FCALC(TEMP(1),BND14(1),NPT10(1),1)
      CMF62=F2C(TEMP,NPT10,BND14,DCM62T)
      TEMP(1)=ALP
      CALL FCALC(TEMP(1),BND15(1),NPT12(1),1)
      RC=F2C(TEMP,NPT12,BND15,RCT)
      CMT62=CMT62*RC
      CMF62=CMF62*RC
      IF(YTEMP.GE.61.7) DCMSTAB=CMT62-CMF62
      IF(YTEMP.GE.61.7) GO TO 120
      CMST62=CMT62-CMF62
      CMST25=CMT25-CMF25
      DCMSTAB=(CMST25-CMST62)*(25.-YTEMP)/36.7+CMST25
  120 CONTINUE
*
*     INCREMENTAL P.M. DUE TO GEAR AND LIDS
*
      DCMLID=0.0015*DMLID
      DCMGEAR=0.0035*DNGEAR
*
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```
*        INCREMENTAL CN AND CA DUE TO STAB, GEAR AND LIDS              YAERO     4313
*                                                                      YAERO     4314
         DCNSTAB=-.467*(DCMSTAB+DCMGE/DSC)                             YAERO     4315
         DCNGEAR=.028*SINALP*DNGEAR                                    YAERO     4316
         DCNLID=.012*SINALP*DNLID                                      YAERO     4317
         CNO=-.467*CMO                                                 YAERO     4318
         CNALPO=-.467*CMALPO                                           YAERO     4319
         DCASTAB=0.0                                                   YAERO     4320
         DCAGEAR=-0.028*COSALP*DNGEAR                                  YAERO     4321
         DCALID=-0.012*COSALP*DNLID                                    YAERO     4322
*                                                                      YAERO     4323
*        LATERAL-DIRECTIONAL COEFFICIENTS                              YAERO     4324
*                                                                      YAERO     4325
*                                                                      YAERO     4326
*            BASELINE AND POWER EFFECTS AS A FUNCTION OF AIRCRAFT VELOCITY YAERO 4327
*            COMPONENT ALONG X-BODY AXIS                               YAERO     4328
*                                                                      YAERO     4329
         IF(UKTS.LE.30.0) GO TO 200                                    YAERO     4330
         TEMP3=5.*(0.6-VEQ)                                            YAERO     4331
         TEMP3=AMIN1(1.,AMAX1(TEMP3,0.))                               YAERO     4332
         TEMP(1)=ALP                                                   YAERO     4333
         TEMP(2)=FLAP                                                  YAERO     4334
         CYBASE=F2A(TEMP,NPT19,BND24,CYBAST)                           YAERO     4335
         CALL FSRCH(TEMP(2),ARK3(1),3,IPREV33,2)                       YAERO     4336
         CLLBASE=F2C(TEMP,NPT25,BND46,CLLBAST)                         YAERO     4337
         CLNBASE=F2C(TEMP,NPT25,BND46,CLNBAST)                         YAERO     4338
*                                                                      YAERO     4339
         DCYHI=F1A(TEMP,NPT19,BND24,DCYHIT)                            YAERO     4340
         DCLNHI=F1A(TEMP,NPT19,BND24,DCLNHIT)                          YAERO     4341
         RK5=0.0                                                       YAERO     4342
         IF(BETA.GT.12.0) RK5=1.0                                      YAERO     4343
         IF(BETA.LT.-12.) RK5=-1.0                                     YAERO     4344
         DCYHI=DCYHI*RK5*(ABS(BETA)-12.0)                              YAERO     4345
         DCLNHI=DCLNHI*RK5*(ABS(BETA)-12.0)                            YAERO     4346
         DCLLHI=0.0                                                    YAERO     4347
*                                                                      YAERO     4348
         TEMP(1)=VEQ                                                   YAERO     4349
         TEMP(2)=ALP                                                   YAERO     4350
         CYPOW=F2A(TEMP,NPT20,BND25,CYPOWT)                            YAERO     4351
         CLLPOW=F2C(TEMP,NPT20,BND25,CLLPOWT)                          YAERO     4352
         CLNPOW=F2C(TEMP,NPT20,BND25,CLNPOWT)                          YAERO     4353
         IF(VEQ.GT.0.4) CYPOW=CYPOW*TEMP3                              YAERO     4354
         IF(VEQ.GT.0.4) CLLPOW=CLLPOW*TEMP3                            YAERO     4355
         IF(VEQ.GT.0.4) CLNPOW=CLNPOW*TEMP3                            YAERO     4356
*                                                                      YAERO     4357
         CYBASE=CYBASE*BETA+DCYHI                                      YAERO     4358
         CLLBASE=CLLBASE*BETA+DCLLHI                                   YAERO     4359
         CLNBASE=CLNBASE*BETA+DCLNHI                                   YAERO     4360
*                                                                      YAERO     4361
         CYPOWER=CYPOW*BETA                                            YAERO     4362
         CLLPOWR=CLLPOW*BETA                                           YAERO     4363
         CLNPOWR=CLNPOW*BETA                                           YAERO     4364
*                                                                      YAERO     4365
         IF(UKTS.GE.50.0) GO TO 201                                    YAERO     4366
   200   CONTINUE                                                      YAERO     4367
*                                                                      YAERO     4368
*        ROLLING MOMENT                                                YAERO     4369
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*
      TEMP(1)=THALP
      TEMP(2)=VEQ
      CALL FCALC(TEMP(1),BND29,15,1)
      CALL FSRCH(TEMP(2),ARK7,4,IPREV11,2)
      RMBE00=F2C(TEMP,NPT26,BND29,RMBE00U)
      RMBE60=F2C(TEMP,NPT26,BND29,RMBE60U)
      TEMP(1)=ABETAP
      TEMP(2)=THALP
      TEMP(3)=VEQ
      CALL FCALC(TEMP(1),BND30,10,1)
      CALL FSRCH(TEMP(2),ARK8,7,IPREV12,2)
      CALL FSRCH(TEMP(3),ARK9,3,IPREV13,3)
      RMBE81=F3D(TEMP,NPT27,BND30,RMBE81U)
      RMBE77=RMBE81*RVF0025*RBP140
      CALL FCALC(TEMP(1),BND31,10,1)
      RMBE96=F2C(TEMP,NPT27,BND31,RMBE96U)
      CALL FCALC(TEMP(1),BND32,13,1)
      RM2P47=F2C(TEMP,NPT28,BND32,RM2P47U)
      RMBE81A=RMBE77*RVF77+RMBE96*RVF96*RBP45+RM2P47*RVF247*RBP24
      RMOGE=(RMBE00*PTJ00+RMBE60*PTJ60)*BETAPP+RMBE81A*RTJ81*SBETAP
      RMOGE=RMOGE*FGTHR*DE
*
*     YAWING MOMENT
*
      CALL FCALC(THALP,BND33,15,1)
      CALL FSRCH(VEQ,ARK10,3,IPREV14,2)
      TEMP(1)=THALP
      TEMP(2)=VEQ
      YMTB00=F2C(TEMP,NPT29,BND33,YMTB00U)
      YMTB60=F2C(TEMP,NPT29,BND33,YMTB60U)
      CALL FSRCH(VEQ,ARK11,5,IPREV15,2)
      YMTB81=F2C(TEMP,NPT30,BND59,YMTB81U)
      YMOGE=(YMTB00*RTJ00+YMTB60*RTJ60+YMTB81*RTJ81)*RVF0025
      YMOGE=YMOGE*BETAPP*FGTHR*DE
*
*     SIDE FORCE
*
      CALL FCALC(THALP,BND34,15,1)
      CALL FSRCH(THETAJ,ARK12,3,IPREV16,2)
      CALL FSRCH(VEQ,ARK13,5,IPREV17,3)
      TEMP(2)=THETAJ
      TEMP(3)=VEQ
      DSFT=F3D(TEMP,NPT31,BND34,DSFTU)*RVF0025
      SFOGE=DSFT*BETAPP*FGTHR
*
*     PHI BIAS TO LAT.-DIR. DATA
*
      TERM=PHIP*SBETAP
      CALL FCALC(TERM,BND38,21,1)
      CALL FCALC(ABETAP,BND38(3),4,2)
      CALL FSRCH(HP,ARK14,6,IPREV24,3)
      TEMP(1)=TERM
      TEMP(2)=ABETAP
      TEMP(3)=HP
      DRMP60=F3D(TEMP,NPT32,BND38,DRMP60U)
      CALL FCALC(ABETAP,BND39,10,1)
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SUBROUTINE AERDYAB    74/175  OPT=2                    FTN 4.8+534        82/10/22. 16.12.41       PAGE    18

      CALL  FSRCH(HP,ARK14,4,IPREV25,2)                                   YAERO     4427
      CALL  FCALC(VET,BND39(5),3,3)                                       YAERO     4428
      TEMP(1)=ABETAP                                                      YAERO     4429
      TEMP(2)=HP                                                          YAERO     4430
      TEMP(3)=VET                                                         YAERO     4431
      RMPAB1=F30(TEMP,NPT33,BND39,RMPAB1U)                                YAERO     4432
      CALL  FCALC(VET,BND40(5),2,3)                                       YAERO     4433
      DRMAB1=F30(TEMP,NPT34,BND40,DRMAB1U)                                YAERO     4434
      DRMAB1D=DRMAB1*RVF0325*RVE7796                                      YAERO     4435
      TERM=PHIP*SBETAP-RMPAB1*RVE7796                                     YAERO     4436
      STERM=SIGN(1.0,TERM)                                                YAERO     4437
      TERM=ABS(TERM)                                                      YAERO     4438
      CALL  FCALC(TERM,BND41,16,1)                                        YAERO     4439
      CALL  FCALC(VET,BND41(5),3,3)                                       YAERO     4440
      TEMP(1)=TERM                                                        YAERO     4441
      DRMPB1=F30(TEMP,NPT35,BND41,DRMPB1U)*RVE7796                        YAERO     4442
      IF(HP.GE.70.0) DRMB81D=DRMAB1D*ABS(SINAP)                           YAERO     4443
      DRMPHI=(DRMP60+PRP30*PTJ06+(DRMPB1*STERM+DRMPB1D)*RTJP1)*SBETAP     YAERO     4444
      DRMPHI=DRMPHI*FGTHR*DF                                              YAERO     4445
                                                                          YAERO     4446
      IF(HP.GE.70.0) GO TO 196                                            YAERO     4447
      IF(VEQ.GE.0.247) GO TO 196                                          YAERO     4448
      CALL  FCALC(VET,BND42,16,1)                                         YAERO     4449
      CALL  FSRCH(HP,ARK15,3,IPREV26,2)                                   YAERO     4450
      CALL  FCALC(1.0,BND42(5),2,3)                                       YAERO     4451
      TEMP(1)=VET                                                         YAERO     4452
      TEMP(2)=HP                                                          YAERO     4453
      TEMP(3)=1.0                                                         YAERO     4454
      BETAK18=F30(TEMP,NPT36,BND42,YMSF81U)                               YAERO     4455
      CALL  FCALC(0.0,BND42(5),2,3)                                       YAERO     4456
      TEMP(3)=0.0                                                         YAERO     4457
      BETAK08=F30(TEMP,NPT36,BND42,YMSF81U)                               YAERO     4458
      YK81=(BETAK18-ABETAP)/(BETAK08-BETAK18+.001)+1.0                    YAERO     4459
      YK81=AMIN1(1.,AMAX1(YK81,0.))                                       YAERO     4460
      CALL  FCALC(VET,BND43,17,1)                                         YAERO     4461
      BETAK06=F30(TEMP,NPT37,BND43,YMSF60U)                               YAERO     4462
      CALL  FCALC(1.0,BND42(5),2,3)                                       YAERO     4463
      TEMP(3)=1.0                                                         YAERO     4464
      BETAK16=F30(TEMP,NPT37,BND43,YMSF60U)                               YAERO     4465
      YK60=(BETAK16-ABETAP)/(BETAK06-BETAK16+.001)+1.0                    YAERO     4466
      YK60=AMIN1(1.,AMAX1(YK60,0.))                                       YAERO     4467
      YK=(YK60*RTJ06+YK81*RTJ81)*RHP7P70                                  YAERO     4468
      IF(YK.EQ.0.0) GO TO 196                                             YAERO     4469
      CALL  FCALC(ABETAP,BND44,16,1)                                      YAERO     4470
      CALL  FCALC(VET,BND44(5),2,3)                                       YAERO     4471
      TEMP(1)=ABETAP                                                      YAERO     4472
      TEMP(3)=VET                                                         YAERO     4473
      PASF60=F30(TEMP,NPT36,BND44,PASF60U)                                YAERO     4474
      PBYM60=F30(TEMP,NPT36,BND44,PBYM60U)                                YAERO     4475
      CALL  FCALC(ABETAP,BND39(1),19,1)                                   YAERO     4476
      CALL  FCALC(VET,BND40(5),2,3)                                       YAERO     4477
      PASF81=F30(TEMP,NPT38,BND60,PASF81U)                                YAERO     4478
      PBYM81=F30(TEMP,NPT38,BND60,PBYM81U)                                YAERO     4479
      YPHTB=(PASF60*RTJ06+PASF81*RTJ81)*RVF0025                           YAERO     4480
      YMPBIAS=(PBYM60*PTJ06*RAP30+PBYM81*RTJ81)*RVF0025                   YAERO     4481
      YPHTF=ABS(PHIP*SBETAP-YPHTB)                                        YAERO     4482
      YMPHTF=ABS(PHIP*SBETAP-YMPBIAS)                                     YAERO     4483
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      CALL  FCALC(YPHIF,BND45,21,1)
      CALL  FSRCH(HP,ARK14,4,IPRFV27,2)
      CALL  FCALC(VET,BND45(5),2,3)
      TEMP(1)=YPHIF
      SFTP60=F3D(TEMP,NPT39,BND45,SFTP60U)
      CALL  FCALC(YMPHIF,BND61,16,1)
      CALL  FSRCH(HP,ARK15,3,IPRFV28,2)
      YMPE60=F3D(TEMP,NPT36,BND61,YMPE60U)
      CALL  FSRCH(VET,ARK17,5,IPRFV29,3)
      YMPE81=F3D(TEMP,NPT40,BND62,YMPE81U)
      CALL  FSRCH(HP,ARK14,4,IPRFV30,2)
      SFTP81=F3D(TEMP,NPT41,BND45,SFTP81U)
      YDSFT1P=SFTP60*RTJ06+SFTP81*RTJ81
      DYM1P=YMPE60*RTJ06+YMPE81*RTJ81
      CALL  FCALC(ABETAP,BND44,21,1)
      CALL  FSRCH(HP,ARK15,3,IPRFV31,2)
      CALL  FCALC(VET,BND44(5),2,3)
      TEMP(1) = ABETAP
      SFTB60=F3D(TEMP,NPT36,BND44,SFTB60U)
      YMBS60=F3D(TEMP,NPT36,BND44,YMBS60U)
      CALL  FCALC(ABETAP,BND40(1),19,1)
      CALL  FSRCH(VET,BRK16,4,IPRFV32,3)
      SFTB81=F3D(TEMP,NPT42,BND63,SFTB81U)
      YMBS81=F3D(TEMP,NPT42,BND63,YMBS81U)
      YDSFTB=(SFTB60*RTJ06+SFTB81*RTJ81)*RVE0025
      DYMBIAS=(YMBS60*RTJ06*RBP30+YMBS81*RTJ81)*RVEC025
      TERM=PHIP+SBETAP-YPHIP
      STERM=SIGN(1.0,TERM)
      YDSFTP=YK*(YDSFT1P*STERM+YDSFTB)*SBETAP*RVE7796*RHP7270
      TERM=PHIP+SBETAP-YMPBIAS
      STERM=SIGN(1.0,TERM)
      DYMPHI=YK*(DYM1P*STERM+DYMBIAS)*SBETAP*RHP7P70
      YDSFTP=YDSFTP*FGTHR
      DYMPHI=DYMPHI*FGTHR*DE
      GO TO 195
*
  196 CONTINUE
      YDSFTP=0.0
      DYMPHI=0.0
  195 CONTINUE
      IF(UKTS.GT.30.0) GO TO 199
      CLLBASE=0.0
      CLNBASE=0.0
      CYBASE=0.0
      GO TO 201
  199 CONTINUE
      CLLBAT=CLLBASE+OSA
      CLNBAT=CLNBASE+OSA
      CYBAT=CYBASE+OS
      TERM=(UKTS-30.)*0.05
      TERM=AMIN1(1.,AMAX1(TERM,0.))
      CLLBAT=(CLLBAT-RMOGE-DRMPHI)*TERM+RMOGE+DRMPHI
      CLNBAT=(CLNBAT-YMOGE-DYMPHI)*TERM+YMOGE+DYMPHI
      CYBAT=(CYBAT-SFOGE-YDSFTP)*TERM+SFOGE+YDSFTP
      CLLBASE=0.0
      CLNBASE=0.0
      CYBASE=0.0
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  201 CONTINUE
*
*        AILERON INCREMENTS
*
*  LEFT AILERON COEFFICIENTS
      TEMP(1)=ALP
      TEMP(2)=DAL
      CYAILL=F2A(TEMP,NPT21,BND26,CYAILT)
      CLLAILL=F2C(TEMP,NPT21,BND26,CLLAILT)
      CLNAILL=F2C(TEMP,NPT21,BND26,CLNAILT)
*  RIGHT AILERON COEFFICIENTS
      TEMP(2)=DAR
      CYAILR=F2A(TEMP,NPT21,BND26,CYAILT)
      CLLAILR=F2C(TEMP,NPT21,BND26,CLLAILT)
      CLNAILR=F2C(TEMP,NPT21,BND26,CLNAILT)
      DCYAIL=RK6*(CYAILL-CYAILR)
      DCLNAIL=CLNAILL-CLNAILR
      DCLLAIL=CLLAILL-CLLAILR
*
*        RUDDER INCREMENTS
*
      DCYRUD=CYDR*DRUDD
      DCLLRUD=CLLDR*DRUDD
      DCLNRUD=CLNDR*DRUDD
*
*        YAW AND ROLL RATE TERMS
*
      CLLR=F1A(ALP,8,BND26(1),CLLRT)
      CLNR=F1B(ALP,8,BND26(1),CLNRT)
      CLLP=F1B(ALP,8,BND26(1),CLLPT)
      CLNP=F1B(ALP,8,BND26(1),CLNPT)
*
*        ASYMMETRIC FLAP INCREMENTS
*
      DCLLF=(CNFLAPL-CNFLAPR)*5.08
      DCLNF=(CAFLAPL+DCAL-CAFLAPR-DCAR)*5.08
      DCLLFJ=DCNFJ*0.5*(1.-RK1)*(RK2-RK3)*5.08
      DCLNFJ=DCAFJ*0.5*(1.-RK1)*(RK2-RK3)*5.08
*
*        TOTAL BASIC AERO COEFFICIENTS
*
      CNBASIC=CNBASE+CNFLAP+DCNAIL+DCNSTAB+DCNGEAR+DCNLID
      CMBASIC=CMBASE+CMFLAP+DCMAIL+DCMSTAB+DCMGEAR+DCMLID
      CABASIC=CABASE+CAFLAP+DCAAIL+DCASTAB+DCAGEAR+DCALID
      CYBASIC=CYBASE+DCYAIL+DCYRUD
      CLLBAS=CLLBASE+DCLLAIL+DCLLRUD
      CLNBAS=CLNBASE+DCLNAIL+DCLNRUD
*
* THIS SECTION COMPUTES THE POWER EFFECTS ON THE A/C AERODYNAMICS IN A
* LOW SPEED ENVIRONMENT
*
*     LONGITUDINAL AERO
*
*
*        POWER EFFECTS
*
      TEMP(1)=THETAJ
```

Each listing line is tagged YAERO with sequence numbers 4541–4597.

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      TEMP(2)=VEQ                                                  YAERO   4598
      IF(VEQ.LE.0.05) TEMP(2)=.05                                  YAERO   4599
      TEMP(3)=ALP                                                  YAERO   4600
      CALL FCALC(TEMP(1),BND5(1),NPT4(1),1)                        YAERO   4601
      CALL FSRCH(TEMP(2),BRK2(1),NPT4(2),IPREV2,2)                 YAERO   4602
      CALL FCALC(TEMP(3),BND5(5),NPT4(3),3)                        YAERO   4603
      DCMPOW=F3D(TEMP,NPT4,BND6,CMPOWT)                            YAERO   4604
      XTEMP=(55.-THETAJ)*0.0222                                    YAERO   4605
      XTEMP=AMIN1(1.,AMAX1(XTEMP,0.))                              YAERO   4606
      TEMP(1)=ALP                                                  YAERO   4607
      TEMP(3)=THETAJ                                               YAERO   4608
      CALL FCALC(TEMP(1),BND21(1),NPT17(1),1)                      YAERO   4609
      CALL FSRCH(TEMP(2),BRK4(1),NPT17(2),IPREV7,2)                YAERO   4610
      CALL FCALC(TEMP(3),BND21(5),NPT17(3),3)                      YAERO   4611
      CA10=F3D(TEMP,NPT17,BND21,CAPOWT)                            YAERO   4612
      CALL FCALC(TEMP(1),BND23(1),NPT19(1),1)                      YAERO   4613
      CA55=F2C(TEMP,NPT19,BND23,CA55T)                             YAERO   4614
      DCAPOW=(CA10-CA55)*XTEMP+CA55                                YAERO   4615
      IF(THETAJ .LE. 10.0) DCAPOW = CA10                           YAERO   4616
      IF(VEQ.GE.0.05) GO TO 105                                    YAERO   4617
      TEMP(1)=THETAJ                                               YAERO   4618
      TEMP(2)=ALP                                                  YAERO   4619
      CALL FCALC(TEMP(1),BND6(1),NPT4(1),1)                        YAERO   4620
      CALL FCALC(TEMP(2),BND6(5),NPT4(3),2)                        YAERO   4621
      DCNPOT=F2C(TEMP,NPT4,BND6,DCNPOWT)*FGTHR                     YAERO   4622
      DCAPOT=DCAPOW*QS                                             YAERO   4623
      TEMP1=-.0175*FGTHR                                           YAERO   4624
      TEMP2=-.005*FGTHR                                            YAERO   4625
      RAT=(VEQ-.01)*25.                                            YAERO   4626
      RAT=AMIN1(1.,AMAX1(RAT,0.))                                  YAERO   4627
      DCNPOT=(DCNPOT-TEMP1)*RAT+TEMP1                              YAERO   4628
      DCAPOT=(DCAPOT-TEMP2)*VEQ*20.+TEMP2                          YAERO   4629
      DCNPOW=0.0                                                   YAERO   4630
      DCAPOW=0.0                                                   YAERO   4631
  105 CONTINUE                                                     YAERO   4632
      TEMP(1)=ALP                                                  YAERO   4633
      TEMP(2)=VEQ                                                  YAERO   4634
      TEMP(3)=THETAJ                                               YAERO   4635
      DCMPOW=F3A(TEMP,NPT14,BND17,DCMPOWT)                         YAERO   4636
      IF(VEQ.LE.0.05) DCMPOW=DCMPOW*VEQ*20.                        YAERO   4637
      IF(VEQ.LE.0.65) GO TO 130                                    YAERO   4638
      ZTEMP=(VEQ-0.65)/0.35                                        YAERO   4639
      ZTEMP=AMIN1(1.,AMAX1(ZTEMP,0.))                              YAERO   4640
      DCMPOW=(0.02-DCMPOW)*ZTEMP+DCMPOW                            YAERO   4641
  130 CONTINUE                                                     YAERO   4642
*                                                                  YAERO   4643
*          FLAP-JET INTERFERENCE                                   YAERO   4644
*                                                                  YAERO   4645
      IF(DFLAPL.LE.15.0.A.DFLAPR.LE.15.0) GO TO 106                YAERO   4646
      TEMP(1)=ALPC                                                 YAERO   4647
      TEMP(2)=VEQ                                                  YAERO   4648
      DCNJ25=F2A(TEMP,NPT5,BND7,CNFJT)                             YAERO   4649
      DCAJ25=F1A(VEQ,14,BND22,CAFJT)                               YAERO   4650
      RKON1=1.-RK1                                                 YAERO   4651
      RKON2=RK2-1.5                                                YAERO   4652
      RKON3=RK3-1.5                                                YAERO   4653
      DCNJ25L=DCNJ25*RKON1*RKON2*0.5                               YAERO   4654
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SUBROUTINE AEROYHB     74/175   OPT=2                  FTN 4.8+538        82/10/22. 15.12.40        PAGE    22

              DCNJ25R=DCNJ25+RKON1+RKON3+0.5                                     YAERO      4655
              DCAJ25L=DCAJ25+RKON1+RKON2+0.5                                     YAERO      4656
              DCAJ25R=DCAJ25+RKON1+RKON3+0.5                                     YAERO      4657
              IF(DFLAPL.LE.25.1 .A. DFLAPR.LE.25.1) GO TO 113                    YAERO      4658
              IF(DFLAPL.GE.61.7.A.DFLAPR.GE.61.7) GO TO 114                      YAERO      4659
              DCNJ45=F1A(THETAJ,10,BND55,CNFJI1T)*FGTHR/QS                       YAERO      4660
              DCAJ45=F1B(THETAJ,10,BND55,CAFJI1T)*FGTHR/QS                       YAERO      4661
              TERM1=(DFLAPL-25.)*0.05                                            YAERO      4662
              TERM2=(DFLAPR-25.)*0.05                                            YAERO      4663
              TERM1=AMIN1(1.,AMAX1(TERM1,0.))                                    YAERO      4664
              TERM2=AMIN1(1.,AMAX1(TERM2,0.))                                    YAERO      4665
              DCNJ45L=(DCNJ45-DCNJ25L)*TERM1+DCNJ25L                             YAERO      4666
              DCNJ45R=(DCNJ45-DCNJ25R)*TERM2+DCNJ25R                             YAERO      4667
              DCAJ45L=(DCAJ45-DCAJ25L)*TERM1+DCAJ25L                             YAERO      4668
              DCAJ45R=(DCAJ45-DCAJ25R)*TERM2+DCAJ25R                             YAERO      4669
              IF(DFLAPL.LE.45.0.A.DFLAPR.LE.45.0) GO TO 115                      YAERO      4670
          114 CONTINUE                                                           YAERO      4671
              DCNJ62=F1A(THETAJ,18,BND56,CNFJI2T)*FGTHR/QS                       YAERO      4672
              DCAJ62=F1B(THETAJ,18,BND56,CAFJI2T)*FGTHR/QS                       YAERO      4673
              TERM3=(DFLAPL-45.)/16.7                                            YAERO      4674
              TERM4=(DFLAPR-45.)/16.7                                            YAERO      4675
              TERM3=AMIN1(1.,AMAX1(TERM3,0.))                                    YAERO      4676
              TERM4=AMIN1(1.,AMAX1(TERM4,0.))                                    YAERO      4677
              DCNJ62L=(DCNJ62-DCNJ45L)*TERM3+DCNJ45L                             YAERO      4678
              DCNJ62R=(DCNJ62-DCNJ45R)*TERM4+DCNJ45R                             YAERO      4679
              DCAJ62L=(DCAJ62-DCAJ45L)*TERM3+DCAJ45L                             YAERO      4680
              DCAJ62R=(DCAJ62-DCAJ45R)*TERM4+DCAJ45R                             YAERO      4681
              CNFJI=DCNJ62L+DCNJ62R                                              YAERO      4682
              CAFJI=DCAJ62L+DCAJ62R                                              YAERO      4683
              GO TO 116                                                          YAERO      4684
          113 CONTINUE                                                           YAERO      4685
              CNFJI=DCNJ25L+DCNJ25R                                              YAERO      4686
              CAFJI=DCAJ25L+DCAJ25R                                              YAERO      4687
              GO TO 116                                                          YAERO      4688
          115 CONTINUE                                                           YAERO      4689
              CNFJI=DCNJ45L+DCNJ45R                                              YAERO      4690
              CAFJI=DCAJ45L+DCAJ45R                                              YAERO      4691
          116 CONTINUE                                                           YAERO      4692
              GO TO 107                                                          YAERO      4693
          106 CONTINUE                                                           YAERO      4694
              CNFJI=0.0                                                          YAERO      4695
              CAFJI=0.0                                                          YAERO      4696
          107 CONTINUE                                                           YAERO      4697
              DCNFJI=CNFJI                                                       YAERO      4698
              DCAFJI=CAFJI                                                       YAERO      4699
              CNPOWER=DCNPOW+CNFJI                                               YAERO      4700
              CAPOWER=DCAPOW+CAFJI                                               YAERO      4701
              IF(DFLAPL.LE.15.0.A.DFLAPR.LE.15.0) GO TO 111                      YAERO      4702
              TEMP(1)=VEQ                                                        YAERO      4703
              TEMP(2)=ALP                                                        YAERO      4704
              TEMP(3)=THETAJ                                                     YAERO      4705
              CALL FSRCH(TEMP(1),BRK1(1),NPT15(1),IPREV6,1)                      YAERO      4706
              CALL FCALC(TEMP(2),BND18(3),NPT15(2),2)                            YAERO      4707
              CALL FCALC(TEMP(3),BND19(5),NPT15(3),3)                            YAERO      4708
              CMJ25=F3D(TEMP,NPT15,BND18,CMFJIT)                                 YAERO      4709
              CMJ25L=CMJ25*(RK2-1.5)                                             YAERO      4710
              CMJ25R=CMJ25*(RK3-1.5)                                             YAERO      4711
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      DCMFJI=F1A(ALP.4,AND47,DCMFJIT)                              YAERO     4712
      RC4=(15.-THETAJ)*0.2                                         YAERO     4713
      RC4=AMIN1(1.,AMAX1(RC4,0.))                                  YAERO     4714
      DCMJ25L=DCMFJI*0.5*RC5*(RK2-1.5)                             YAERO     4715
      DCMJ25R=DCMFJI*0.5*RC5*(RK3-1.5)                             YAERO     4716
      CMJ25L=(CMJ25L+DCMJ25L)*RC4                                  YAERO     4717
      CMJ25R=(CMJ25R+DCMJ25R)*RC4                                  YAERO     4718
      IF(DFLAPL.LE.25.1 .A. DFLAPR.LE.25.1) GO TO 140              YAERO     4719
      IF(DFLAPL.GE.61.7.A.DFLAPR.GE.61.7) GO TO 141                YAERO     4720
      CMJ45=F1A(THETAJ,10,AND25,CMFJIT1)*FGTHR/OSC                 YAERO     4721
      CMJ45L=(CMJ45-CMJ25L)*TERM1+CMJ25L                           YAERO     4722
      CMJ45R=(CMJ45-CMJ25R)*TERM2+CMJ25R                           YAERO     4723
      IF(DFLAPL.LE.45.0.A.DFLAPR.LE.45.0) GO TO 142                YAERO     4724
  141 CONTINUE                                                     YAERO     4725
      CMJ62=F1A(THETAJ,14,AND56,CMFJI2T)*FGTHR/OSC                 YAERO     4726
      CMJ62L=(CMJ62-CMJ45L)*TERM3+CMJ45L                           YAERO     4727
      CMJ62R=(CMJ62-CMJ45R)*TERM4+CMJ45R                           YAERO     4728
      CMFJI=CMJ62L+CMJ62R                                          YAERO     4729
      GO TO 117                                                    YAERO     4730
  140 CONTINUE                                                     YAERO     4731
      CMFJI=CMJ25L+CMJ25R                                          YAERO     4732
      GO TO 117                                                    YAERO     4733
  142 CONTINUE                                                     YAERO     4734
      CMFJI=CMJ45L+CMJ45R                                          YAERO     4735
  117 CONTINUE                                                     YAERO     4736
      GO TO 112                                                    YAERO     4737
  111 CONTINUE                                                     YAERO     4738
      DCMFJI=0.0                                                   YAERO     4739
      CMFJI=0.0                                                    YAERO     4740
  112 CMPOWER=DCMPOW+CMFJI                                         YAERO     4741
*                                                                  YAERO     4742
*     LATERAL-DIRECTIONAL AERO                                     YAERO     4743
*     POWER EFFECTS CALCULATED IN BASIC SECTION FOR SIMPLICITY      YAERO     4744
*                                                                  YAERO     4745
*                                                                  YAERO     4746
* THIS SECTION COMPUTES THE INCREMENTAL COEFFICIENTS DUE TO GE      YAERO     4747
*                                                                  YAERO     4748
*     LONGITUDINAL AERO GROUND EFFECTS                             YAERO     4749
*                                                                  YAERO     4750
      IF(HP.GE.64.0) GO TO 301                                     YAERO     4751
      IF(THETA .LE.60.0.A.VEQ.GE.0.1) GO TO 300                    YAERO     4752
      TEMP(1)=THALP                                                YAERO     4753
      TEMP(2)=HP                                                   YAERO     4754
      CALL FCALC(TEMP(1),AND27(1),NPT22(1),1)                      YAERO     4755
      CALL FSRCH(TEMP(2),ARK5,NPT22(2),IPREV8,2)                   YAERO     4756
      CNGE81=F2C(TEMP,NPT22,AND27,CNGF8IT)                         YAERO     4757
      CALL FCALC(TEMP(1),AND27(1),NPT43(1),1)                      YAERO     4758
      CALL FSRCH(TEMP(2),ARK6,NPT43(2),IPREV9,2)                   YAERO     4759
      CAGE81=F2C(TEMP,NPT43,AND27,CAGF8IT)                         YAERO     4760
      CALL FSRCH(TEMP(2),ARK,,NPT23(2),IPREV10,2)                  YAERO     4761
      CMGE81=F2C(TEMP,NPT23,AND27,CMGF8IT)                         YAERO     4762
      FNGE81= CNGE81*FGTHR                                         YAERO     4763
      FAGE81=CAGE81*FGTHR                                          YAERO     4764
      PMGE81=CMGE81*FGTHR*DF                                       YAERO     4765
      IF(THETAJ.GE.80.0) GO TO 302                                 YAERO     4766
  300 CONTINUE                                                     YAERO     4767
      IF(THETAJ.LE.60.0.A.HP.GE.22.) GO TO 301                     YAERO     4768
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      TEMP(1)=THALP                                        YAERO   4769
      TEMP(2)=HP                                           YAERO   4770
      TEMP(3)=VEO                                          YAERO   4771
      CNGE55=F3A(TEMP,NPT24,BND28,CNGE55T)                 YAERO   4772
      CAGE55=F3D(TEMP,NPT24,BND28,CAGE55T)                 YAERO   4773
      CMGE55=F3D(TEMP,NPT24,BND28,CMGE55T)                 YAERO   4774
      IF(THETAJ.LE.55.) GO TO 303                          YAERO   4775
      CALL FCALC(TEMP(1),BND28(1),5,1)                     YAERO   4776
      CALL FCALC(TEMP(2),BND28(3),12,2)                    YAERO   4777
      DCN60=F2C(TEMP,NPT24,BND28,DCN60T)                   YAERO   4778
      DCM60=F2C(TEMP,NPT24,BND28,DCM60T)                   YAERO   4779
      DCA60=F2C(TEMP,NPT24,BND28,DCA60T)                   YAERO   4780
      CNGE60=(CNGE55+DCN60)*QS                             YAERO   4781
      CAGE60=(CAGE55+DCA60)*QS                             YAERO   4782
      CMGE60=(CMGE55+DCM60)*QSC                            YAERO   4783
      IF(THETAJ.LT.60.) GO TO 303                          YAERO   4784
      IF(VEO.GT.0.1) GO TO 306                             YAERO   4785
      TERM=(THETAJ-60.)/21.                                YAERO   4786
      TERM=AMIN1(1.,AMAX1(TERM,0.))                        YAERO   4787
      CNGE=(CNGE81-CNGE60)*TERM+CNGE60                     YAERO   4788
      CAGE=(CAGE81-CAGE60)*TERM+CAGE60                     YAERO   4789
      CMGE=(CMGE81-CMGE60)*TERM+CMGE60                     YAERO   4790
      GO TO 400                                            YAERO   4791
  306 CONTINUE                                             YAERO   4792
      CNGE=CNGE60                                          YAERO   4793
      CAGE=CAGE60                                          YAERO   4794
      CMGE=CMGE60                                          YAERO   4795
      GO TO 400                                            YAERO   4796
  303 CONTINUE                                             YAERO   4797
      CNGE55=CNGE55*QS                                     YAERO   4798
      CAGE55=CAGE55*QS                                     YAERO   4799
      CMGE55=CMGE55*QSC                                    YAERO   4800
      IF(THETAJ.LE.55.) GO TO 304                          YAERO   4801
      TERM=(THETAJ-55.)*.2                                 YAERO   4802
      TERM=AMIN1(1.,AMAX1(TERM,0.))                        YAERO   4803
      CNGE=(CNGE60-CNGE55)*TERM+CNGE55                     YAERO   4804
      CAGE=(CAGE60-CAGE55)*TERM+CAGE55                     YAERO   4805
      CMGE=(CMGE60-CMGE55)*TERM+CMGE55                     YAERO   4806
      GO TO 400                                            YAERO   4807
  304 CONTINUE                                             YAERO   4808
      TEMP(1)=THALP                                        YAERO   4809
      TEMP(2)=HP                                           YAERO   4810
      CALL FCALC(TEMP(1),BND28(1),5,1)                     YAERO   4811
      CALL FCALC(TEMP(2),BND28(3),12,2)                    YAERO   4812
      DCN50=F2C(TEMP,NPT24,BND28,DCN50T)                   YAERO   4813
      DCA50=F2C(TEMP,NPT24,BND28,DCA50T)                   YAERO   4814
      DCM50=F2C(TEMP,NPT24,BND28,DCM50T)                   YAERO   4815
      CNGE50=CNGE55+DCN50*QS                               YAERO   4816
      CAGE50=CAGE55+DCA50*QS                               YAERO   4817
      CMGE50=CMGE55+DCM50*QSC                              YAERO   4818
      IF(THETAJ.LT.50.0) GO TO 305                         YAERO   4819
      TERM=(THETAJ-50.)*.2                                 YAERO   4820
      TERM=AMIN1(1.,AMAX1(TERM,0.))                        YAERO   4821
      CNGE=(CNGE55-CNGE50)*TERM+CNGE50                     YAERO   4822
      CAGE=(CAGE55-CAGE50)*TERM+CAGE50                     YAERO   4823
      CMGE=(CMGE55-CMGE50)*TERM+CMGE50                     YAERO   4824
      GO TO 400                                            YAERO   4825
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  305 CONTINUE                                                YAERO   4826
      TERM=(THETA)-10.)/40.                                   YAERO   4827
      TERM=AMIN1(1.,AMAX1(TERM,0.))                           YAERO   4828
      TEMP(1)=THALP                                           YAERO   4829
      TEMP(2)=HP                                              YAERO   4830
      TEMP(3)=VET                                             YAERO   4831
      CALL  FCALC(TEMP(1),BND64(1),5,1)                       YAERO   4832
      CALL  FCALC(TEMP(2),BND64(3),12,2)                      YAERO   4833
      CALL  FCALC(TEMP(3),BND54(1),2,3)                       YAERO   4834
      DCM10=F3D(TEMP,NPT44,BND64,DCM10T)                      YAERO   4835
      CMGE10=DCM10+DSC                                        YAERO   4836
      CMGE=(CMGE50-CMGE10)*TERM+CMGE10                        YAERO   4837
      CNGE=CNGE50                                             YAERO   4838
      CAGE=CAGE50*TERM                                        YAERO   4839
      GO TO 400                                               YAERO   4840
  301 CONTINUE                                                YAERO   4841
      CNGE=0.0                                                YAERO   4842
      CAGE=0.0                                                YAERO   4843
      CMGE=0.0                                                YAERO   4844
      GO TO 400                                               YAERO   4845
  302 CONTINUE                                                YAERO   4846
      CNGE=FNGE81                                             YAERO   4847
      CAGE=FAGE81                                             YAERO   4848
      CMGE=PMGE81                                             YAERO   4849
  400 CONTINUE                                                YAERO   4850
      RK30=1.-HP/21.7                                         YAERO   4851
      RK30=AMIN1(1.,AMAX1(RK30,0.))                           YAERO   4852
      RKO=F1A(THALP,8,BND23(1),RKOT)                          YAERO   4853
      TERM=(THETA)-10.)/40.                                   YAERO   4854
      TERM=AMIN1(1.,AMAX1(TERM,0.))                           YAERO   4855
      RKO=(RKO-1.6)*TERM+1.6                                  YAERO   4856
      DCMGE=(RKO-1.)*RK30*DCMSTAR                             YAERO   4857
      DCMGE=DCMGE*DSC                                         YAERO   4858
      CMGE=CMGE+DCMGE                                         YAERO   4859
*                                                             YAERO   4860
*     LAT.-DIR. AERO GROUND EFFECTS                           YAERO   4861
*                                                             YAERO   4862
      IF(HP.GE.70.0) GO TO 195                                YAERO   4863
      CALL  FCALC(THALP,BND35(1),15,1)                        YAERO   4864
      CALL  FSRCH(HP,BRK14,4,IPREV18,2)                       YAERO   4865
      CALL  FCALC(VET,BND35(5),2,3)                           YAERO   4866
      TEMP(1)=THALP                                           YAERO   4867
      TEMP(2)=HP                                              YAERO   4868
      TEMP(3)=VET                                             YAERO   4869
      RMGE00=F3D(TEMP,NPT45,BND35,RMGE00U)                    YAERO   4870
      RMGE60=RMGE00*RVE0025                                   YAERO   4871
      CALL  FCALC(ABETAP,BND36(1),10,1)                       YAERO   4872
      CALL  FSRCH(THALP,BRK8 ,7,IPREV19,2)                    YAERO   4873
      CALL  FSRCH(VET,BRK9,3,IPREV20,3)                       YAERO   4874
      TEMP(1)=ABETAP                                          YAERO   4875
      TEMP(2)=THALP                                           YAERO   4876
      RM1P2=F3D(TEMP,NPT27,BND36,RMATA1U)                     YAERO   4877
      RM4P12=F3D(TEMP,NPT27,BND36,RM4P12U)                    YAERO   4878
      RM7P05=F3D(TEMP,NPT27,BND36,RM7P05U)                    YAERO   4879
      RMGE81=(RM1P2*RHP120+RM4P12*RH24)2+RM7P05*RHP705)*RVE577 YAERO   4880
      DRMIGF=RMGE60*RTJ60*BETAPC+RMGE81*RTJ81*SBETAP*RVE0C25*RBP90 YAERO 4881
      RMIGE=DRMIGE*FGTHR*DF                                   YAERO   4882
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      CALL FCALC(THALP,BND65,15,1)
      CALL FSRCH(HP,BRK15,3,IPREV21,2)
      TEMP(1)=THALP
      TEMP(2)=HP
      SFGE60=F2C(TEMP,NPT29,BND37,SFGE60U)
      CALL FSRCH(VET,BRK16,4,IPREV22,3)
      SFGE81=F3D(TEMP,NPT46,BND65,SFGE81U)
      YSFTB=(SFGE60*RTJ60+SFGE81*RTJ81)*RVFO025*RHP7P70
      SFIGE=YSFTB*FGTHR*BETAPP
      CALL FCALC(THALP,BND37,15,1)
      CALL FSRCH(HP,BRK15,3,IPREV23,2)
      YMGE60=F2C(TEMP,NPT29,BND37,YMGE60U)
      CALL FSRCH(VET,BRK16,4,IPREV50,3)
      YMGE81=F3D(TEMP,NPT46,BND65,YMGE81U)
      DYMIGE=(YMGE60*RTJ60+YMGE81*RTJ81)*RVFO025*RHP7P70
      YMIGE=DYMIGE*FGTHR*DF*BETAPP
      GO TO 197
  198 CONTINUE
      RMIGE=0.0
      SFIGE=0.0
      YMIGE=0.0
  197 CONTINUE
*
*     TOTAL AERO FORCE AND MOMENTS
*
      CN=CNBASIC+CNPOWER
      CA=CABASIC+CAPOWER
      CM=CMBASIC+CMPOWER
      CY=CYBASIC+CYPOWER
      CLL=CLLBAS+CLLPOWR
      CLN=CLNBAS+CLNPOWR
      CL=CN*COSALP+CA*SINALP
      CD=CN*SINALP-CA*COSALP
      AEROX=CA*QS+CAGE
      IF(VEQ.LT.0.05) AEROX=AEROX+DCAPOT
      AEROZ=-CN*QS-(CNQ*Q+CNALPD*ALPD*DTOR*RK11)*TEMPX1
      AEROZ=AEROZ-CNGE
      IF(VEQ.LT.0.05) AEROZ=AEROZ-DCNPOT
      AEROM=CM*QSC+(CMQ*Q*TEMPX2-TEMPX3)+(CMALPD*ALPD*DTOR*TEMPX2*RK11)
      AEROM=AEROM+CMGE
     .+AEROZ*(CGREF-CG)*CBAR+AEROX*(CGWL-96.)/12.
      AEROY=CY*QS
      AEROL=CLL*QSB+CLLR*R*TEMPX4+CLLP*P*TEMPX4-TEMPX5+(DCLLF+
     .      DCLLFJT)*QS
      AERON=CLN*QSB+CLNR*R*TEMPX4-TEMPX6+CLNP*P*TEMPX4+(DCLNF+
     .      DCLNFJT)*QS
      AEROY=AEROY+SFIGE
      AEROL=AEROL+RMIGE
      AERON=AERON+YMIGE
      IF(UKTS.GT.30.) GO TO 206
      AEROY=AEROY+SFOGE+YDSFTP
      AEROL=AEROL+RMOGE+DRMPHI
      AERON=AERON+YMOGE+DYMPHI
  206 CONTINUE
      IF(UKTS.GE.50.0.O.UKTS.LE.30.0) GO TO 207
      AEROY=AEROY+CYBAT
      AEROL=AEROL+CLLBAT
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SUBROUTINE AEROYUB    74/175  OPT=2                    FTN 4.8+538       82/10/22. 15.12.40        PAGE    27

          AERON=AERON+CLNRAT
      207 CONTINUE
          AEROL=AEROL-AEROY*((CGWL-96.)/12.)-AEROZ*(CGBL/12.)
          AERON=AERON+AEROY*((CGFS-346.6)/12.)+AEROX*(CGBL/12.)
          RLIFT=CL*QS
          RDRAG=CD*QS
          IF(RMACH.LE.0.3) GO TO 901
      900 CONTINUE
*
*
*         THIS SECTION COMPUTES AERO FORCES AND MOMENTS GT 0.50 MACH NO.
*
*
*
*
*         PITCHING MOMENT COEFFICIENT REF. AT FS 346.6
*
          DFL=DFLAPL/5.
          DFR=DFLAPR/5.
          DFL=AMIN1(1.,AMAX1(DFL,0.))
          DFR=AMIN1(1.,AMAX1(DFR,0.))
          IF(ALP.LE.-10.0.O.ALP.GE.30.0) GO TO 600
*
*              **************************
*
*              PITCHING MOMENT COEFFICIENT.
*
*              **************************
*
*
*       BASELINE
*
          CALL FCALC(ALP,AND60(1),15,1)
          CALL FSRCH(RMACH,BRK37,9,IH25,2)
          TEMP(1)=ALP
          TEMP(2)=RMACH
          CMBAS2=F2C(TEMP,NPT47,AND66,HCMB2T)
          IF(ALP.GE.-4.0.A.ALP.LE.24.0) GO TO 601
      600 CONTINUE
          CALL FSRCH(ALP,BRK19,23,IH2,1)
          CMBAS1=F1B(ALP,23,AND1,HCMB1T)
          CMBASEH=CMBAS1
          IF(ALP.GE.30.0.O.ALP.LE.-10.0) GO TO 602
          IF(ALP.GT.0.0) ALPR=(ALP/6.)-4.0
          IF(ALP.LT.0.0) ALPR=ABS((ALP+4)/6.0)
          CMBASEH=(CMBAS1-CMBAS2)*ALPR+CMBAS2
          GO TO 602
      601 CONTINUE
          CMBASEH=CMBAS2
      602 CONTINUE
*
*       STABILATOR INCREMENT
*
          CALL FSRCH(DHTD,BRK20,10,IH3,1)
          CALL FCALC(ALP,AND67(3),8,2)
          CALL FSRCH(RMACH,BRK18,8,IH1,3)
          TEMP(1)=DHTD
          TEMP(2)=ALP
          TEMP(3)=RMACH
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      DCMST=F3D(TEMP,NPT48,BND67,HCMSTT)                         YAERO     4997
*                                                                YAERO     4998
*  FLAP INCREMENT                                                YAERO     4999
*                                                                YAERO     5000
      CALL  FCALC(ALP,BND68(1),15,1)                             YAERO     5001
      CALL  FCALC(DFLAPL,BND68(3),5,2)                           YAERO     5002
      CALL  FSRCH(RMACH,BRK22,8,IH5,3)                           YAERO     5003
      TEMP(1)=ALP                                                YAERO     5004
      TEMP(2)=DFLAPL                                             YAERO     5005
      DCMFL=F3D(TEMP,NPT49,BND68,HCMFT)*0.5                      YAERO     5006
      CALL  FCALC(DFLAPR,BND68(3),5,2)                           YAERO     5007
      TEMP(2)=DFLAPR                                             YAERO     5008
      DCMFR=F3D(TEMP,NPT49,BND68,HCMFT)*0.5                      YAERO     5009
      DCMFL=DCMFL+DFL                                            YAERO     5010
      DCMFR=DCMFR+DFR                                            YAERO     5011
*                                                                YAERO     5012
*  POWER INCREMENT                                               YAERO     5013
*                                                                YAERO     5014
      CALL  FCALC(ALP,BND69(1),8,1)                              YAERO     5015
      CALL  FCALC(VFO,BND69(3),11,2)                             YAERO     5016
      CALL  FSRCH(THETAJ,BRK36,12,IH24,3)                        YAERO     5017
      TEMP(2)=VFO                                                YAERO     5018
      TEMP(3)=THETAJ                                             YAERO     5019
      HCMP1=F3D(TEMP,NPT50,BND69,HCMPOWT)                        YAERO     5020
      CALL  FCALC(1.0,BND69(3),11,2)                             YAERO     5021
      CALL  FSRCH(0.0,BRK36,12,IH42,3)                           YAERO     5022
      TEMP(2)=1.0                                                YAERO     5023
      TEMP(3)=0.0                                                YAERO     5024
      HCMP2=F3D(TEMP,NPT50,BND69,HCMPOWT)                        YAERO     5025
      HCMPOW=HCMP1-HCMP2                                         YAERO     5026
*                                                                YAERO     5027
      GKCMP = .085*THETAJ - .7                                   YAERO     5028
      GKCMP=AMIN1(1.,AMAX1(GKCMP,.15))                           YAERO     5029
      HCMPOW = HCMPOW*GKCMP                                      YAERO     5030
*                                                                YAERO     5031
*  PITCH RATE AND ALPHA DOT INCREMENTS                           YAERO     5032
*                                                                YAERO     5033
      CALL  FSRCH(RMACH,BRK41,5,IH31,1)                          YAERO     5034
      CMQT = F1B(RMACH,5,BND67(5),HCMQT)                         YAERO     5035
      CMQH=CMQT*Q*RTOD*SCALR*C02V                                YAERO     5036
      CALL  FCALC(RMACH,BND53,6,1)                               YAERO     5037
      CMALPDT = F1B(RMACH,6,BND53,HCMADT)                        YAERO     5038
      CMALPDH=-CMALPDT*ALPD*DTOR*C02V                            YAERO     5039
*                                                                YAERO     5040
*  AILERON INCREMENT                                             YAERO     5041
*                                                                YAERO     5042
      CALL  FCALC(DAR,BND52(1),6,1)                              YAERO     5043
      CALL  FCALC(ALP,BND52(3),8,2)                              YAERO     5044
      TEMP(1)=DAR                                                YAERO     5045
      TEMP(2)=ALP                                                YAERO     5046
      HCMDAR=F2C(TEMP,NPT51,BND52,HCMDAT)                        YAERO     5047
      CALL  FCALC(DAL,BND52(1),6,1)                              YAERO     5048
      TEMP(1)=DAL                                                YAERO     5049
      HCMDAL=F2C(TEMP,NPT51,BND52,HCMDAT)                        YAERO     5050
      HCMDA=HCMDAR+HCMDAL                                        YAERO     5051
*                                                                YAERO     5052
*  STING INCREMENT                                               YAERO     5053
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*                                                                 YAERO    5054
      CMSTING = 0.035                                             YAERO    5055
      IF(RMACH.GE.0.8) CMSTING = 0.35*RMACH - 0.245               YAERO    5056
      IF(CMSTING.GT.0.07) CMSTING = 0.07                          YAERO    5057
*                                                                 YAERO    5058
*  TOTAL PITCHING MOMENT COEFFICIENT                              YAERO    5059
*                                                                 YAERO    5060
      HTCM=CMBASEH+DCMST+DCMFL+DCMFR+HCMPOW                       YAERO    5061
     +CMQH+CMALPDH+HCMDA+CMSTING                                  YAERO    5062
      IF(ALP.LE.-10.0.O.ALP.GE.30.0) GO TO 603                    YAERO    5063
*                                                                 YAERO    5064
*         ****************                                        YAERO    5065
*                                                                 YAERO    5066
*         LIFT COEFFICIENT                                        YAERO    5067
*                                                                 YAERO    5068
*         ****************                                        YAERO    5069
*                                                                 YAERO    5070
*  BASELINE                                                       YAERO    5071
*                                                                 YAERO    5072
      CALL FCALC(ALP,BND66(1),15,1)                               YAERO    5073
      CALL FSRCH(RMACH,BRK37,9,IH25,2)                            YAERO    5074
      TEMP(1)=ALP                                                 YAERO    5075
      TEMP(2)=RMACH                                               YAERO    5076
      CLBAS2=F2C(TEMP,NPT47,BND66,HCL2T)                          YAERO    5077
      IF(ALP.GE.-4.0.A.ALP.LE.24.0) GO TO 604                     YAERO    5078
  603 CONTINUE                                                    YAERO    5079
      CALL FSRCH(ALP,BRK25,20,IH8,1)                              YAERO    5080
      CLBAS1=F1B(ALP,20,BND1,HCL1T)                               YAERO    5081
      CLBASE=CLBAS1                                               YAERO    5082
      IF(ALP.GE.30.0.O.ALP.LE.-10.0) GO TO 605                    YAERO    5083
      CLBASE=(CLBAS1-CLBAS2)*ALPR+CLBAS2                          YAERO    5084
      GO TO 605                                                   YAERO    5085
  604 CONTINUE                                                    YAERO    5086
      CLBASE=CLBAS2                                               YAERO    5087
  605 CONTINUE                                                    YAERO    5088
*                                                                 YAERO    5089
*  LIFT DUE TO STABILATOR                                         YAERO    5090
*                                                                 YAERO    5091
      CLSTAB=-107.41*DCMST*QBAR                                   YAERO    5092
*                                                                 YAERO    5093
*  FLAP INCREMENT                                                 YAERO    5094
*                                                                 YAERO    5095
      CALL FCALC(ALP,BND68(1),15,1)                               YAERO    5096
      CALL FCALC(DFLAPL,BND68(3),5,2)                             YAERO    5097
      CALL FSRCH(RMACH,BRK22,8,IH5,3)                             YAERO    5098
      TEMP(1)=ALP                                                 YAERO    5099
      TEMP(2)=DFLAPL                                              YAERO    5100
      TEMP(3)=RMACH                                               YAERO    5101
      DCLFL=F3D(TEMP,NPT49,BND68,HCLFT)*0.5                       YAERO    5102
      CALL FCALC(DFLAPR,BND68(3),5,2)                             YAERO    5103
      TEMP(2)=DFLAPR                                              YAERO    5104
      DCLFR=F3D(TEMP,NPT49,BND68,HCLFT)*0.5                       YAERO    5105
      DCLFL=DCLFL*DFL                                             YAERO    5106
      DCLFR=DCLFR*DFR                                             YAERO    5107
*                                                                 YAERO    5108
*  AILERON INCREMENT                                              YAERO    5109
*                                                                 YAERO    5110
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      CALL  FCALC(DAL,BND70(1),5,1)                          YAERO   5111
      CALL  FSRCH(RMACH,BRK28,4,IHI2,2)                      YAERO   5112
      TEMP(1)=DAL                                            YAERO   5113
      TEMP(2)=RMACH                                          YAERO   5114
      DCLAL=F2C(TEMP,NPT52,BND70,HCLAILT)                    YAERO   5115
      CALL  FCALC(DAR,BND70(1),5,1)                          YAERO   5116
      TEMP(1)=DAR                                            YAERO   5117
      DCLAR=F2C(TEMP,NPT52,BND70,HCLAILT)                    YAERO   5118
*                                                            YAERO   5119
*   POWER INCREMENT                                          YAERO   5120
*                                                            YAERO   5121
      CALL  FCALC(THETAJ,BND6(1),NPT4(1),1)                  YAERO   5122
      CALL  FSRCH(VFQ,BRK2,NPT4(2),IPREV2,2)                 YAERO   5123
      CALL  FCALC(ALP,BND6(5),NPT4(3),3)                     YAERO   5124
      TEMP(1)=THETAJ                                         YAERO   5125
      TEMP(2)=VFQ                                            YAERO   5126
      TEMP(3)=ALP                                            YAERO   5127
      DCNPOW1=F3D(TEMP,NPT4,BND6,CNPOWT)                     YAERO   5128
      CALL  FCALC(0.0,BND6(1),NPT4(1),1)                     YAERO   5129
      CALL  FSRCH(1.0,BRK2,NPT4(2),IHI3,2)                   YAERO   5130
      TEMP(1)=0.0                                            YAERO   5131
      TEMP(2)=1.0                                            YAERO   5132
      DCNPOW2=F3D(TEMP,NPT4,BND6,CNPOWT)                     YAERO   5133
      CALP=COSALP                                            YAERO   5134
      IF(CALP.EQ.0.0) CALP=.001                              YAERO   5135
      DCLPOW=(DCNPOW1-DCNPOW2)/CALP                          YAERO   5136
*                                                            YAERO   5137
*                                                            YAERO   5138
*   TOTAL LIFT COEFFICIENT                                   YAERO   5139
*                                                            YAERO   5140
      HTCL=CLBASE+DCLFL+DCLFR+DCLAL+DCLAR+DCLPOW             YAERO   5141
      IF(ALP.GE.40.0.O.ALP.LE.-10.0) GO TO 610               YAERO   5142
*                                                            YAERO   5143
*         ****************                                   YAERO   5144
*                                                            YAERO   5145
*         DRAG COEFFICIENT                                   YAERO   5146
*                                                            YAERO   5147
*         ****************                                   YAERO   5148
*                                                            YAERO   5149
*   BASELINE (CLEAN AIRCRAFT)                                YAERO   5150
*                                                            YAERO   5151
      CALL  FSRCH(RMACH,BRK29,8,IHI4,1)                      YAERO   5152
      CALL  FSRCH(CLBASE,BRK30,23,IHI5,2)                    YAERO   5153
      TEMP(1)=RMACH                                          YAERO   5154
      TEMP(2)=CLBASE                                         YAERO   5155
      CDBAS2=F2C(TEMP,NPT53,BND71,HCD2T)                     YAERO   5156
      IF(CLBASE.GE.-.35.A.CLBASE.LE.1.20) GO TO 611          YAERO   5157
  610 CONTINUE                                               YAERO   5158
      CALL  FSRCH(ALP,BRK35,18,IHI6,1)                       YAERO   5159
      CDBAS1=F1B(ALP,18,BND1,HCD1T)                          YAERO   5160
      CDBASE=CDBAS1                                          YAERO   5161
      IF(ALP.GE.40.0.O.ALP.LE.-10.0) GO TO 612               YAERO   5162
      IF(ALP.LT.0.) ALPR=ALP*2.1+1.0                         YAERO   5163
      IF(ALP.GT.0.) ALPR=(40.-ALP)/16.                       YAERO   5164
      ALPR=AMIN1(1.,AMAX1(ALPR,0.))                          YAERO   5165
      CDBASE=(CDBAS2-CDBAS1)*ALPR+CDBAS1                     YAERO   5166
      GO TO 612                                              YAERO   5167
```

```
      611 CONTINUE
          CDBASE=CDBAS2
      612 CONTINUE
*
*     FLAP INCREMENT
*
          CALL  FCALC(ALP,BND68(1),15,1)
          CALL  FCALC(DFLAPL,BND68(3),5,2)
          CALL  FSRCH(RMACH,BRK48,6,IH44,3)
          TEMP(1)=ALP
          TEMP(2)=DFLAPL
          TEMP(3)=RMACH
          DCDFL=F3D(TEMP,NPT54,BND68,HCDFT)*0.5
          CALL  FCALC(DFLAPR,BND68(3),5,2)
          TEMP(2)=DFLAPR
          DCDFR=F3D(TEMP,NPT54,BND68,HCDFT)*0.5
          DCDFL=DCDFL*DFL
          DCDFR=DCDFR*DFR
*
*     AILERON INCREMENT
*
          CALL  FSRCH(DAL,BRK31,9,IH19,1)
          CALL  FSRCH(RMACH,BRK32,5,IH19,2)
          CALL  FCALC(ALP,BND72(5),4,3)
          TEMP(1)=DAL
          TEMP(2)=RMACH
          TEMP(3)=ALP
          DCDAL=F3D(TEMP,NPT55,BND72,HCDAILT)
          CALL  FSRCH(DAR,BRK31,9,IH22,1)
          TEMP(1)=DAR
          DCDAR=F3D(TEMP,NPT55,BND72,HCDAILT)
*
*     STABILATOR INCREMENT
*
          CALL  FCALC(ALP,BND73(1),7,1)
          CALL  FCALC(DHTD,BND73(3),7,2)
          CALL  FSRCH(RMACH,BRK33,4,IH20,3)
          TEMP(1)=ALP
          TEMP(2)=DHTD
          TEMP(3)=RMACH
          DCDSTAB=F3D(TEMP,NPT56,BND73,HCDSTT)
          DHTRIM = 1.5
          CALL  FCALC(DHTRIM,BND73(3),7,2)
          TEMP(2)=DHTRIM
          DCDTRIM=F3D(TEMP,NPT56,BND73,HCDSTT)
          CDSTAB=DCDSTAB-DCDTRIM
*
*     RUDDER INCREMENT
*
          CALL  FCALC(ALP,BND74(1),8,1)
          CALL  FSRCH(RMACH,BRK34,4,IH23,2)
          TEMP(2)=RMACH
          CDDR=F2C(TEMP,NPT57,BND74,HCDDRT)
*
*     DRAG INCREMENT DUE TO 5 PYLONS AND 2 GUN PODS
*
          HCDSTOW=.00413
```

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*                                                              YAERO   5225
*                                                              YAERO   5226
*   TOTAL DRAG COEFFICIENT                                     YAERO   5227
*                                                              YAERO   5228
      HICD=CDBASE+DCDFL+DCDFR+DCDAL+DCDAR+CDSTAB+CDDR*ABS(DRUDD)  YAERO   5229
     .     +HCDSTOW                                            YAERO   5230
      DHICD=.028*DNGEAP+.012*DNLID                             YAERO   5231
*                                                              YAERO   5232
*          *************************                           YAERO   5233
*                                                              YAERO   5234
*          YAWING MOMENT COEFFICIENT                           YAERO   5235
*                                                              YAERO   5236
*          *************************                           YAERO   5237
*                                                              YAERO   5238
      RMULTL=(DFLAPL-5.)/5.                                    YAERO   5239
      RMULTR=(DFLAPR-5.)/5.                                    YAERO   5240
      RMULTL=AMIN1(1.,AMAX1(RMULTL,0.))                        YAERO   5241
      RMULTR=AMIN1(1.,AMAX1(RMULTR,0.))                        YAERO   5242
*                                                              YAERO   5243
*   BASELINE                                                   YAERO   5244
*                                                              YAERO   5245
      CALL FSRCH(RMACH,BRK42,6,IH32,1)                         YAERO   5246
      CALL FCALC(ALP,BND75(3),15,2)                            YAERO   5247
      TEMP(1)=RMACH                                            YAERO   5248
      TEMP(2)=ALP                                              YAERO   5249
      CNB=F2C(TEMP,NPT58,BND75,HCNBHT)                         YAERO   5250
*                                                              YAERO   5251
*   AILERON INCREMENT                                          YAERO   5252
*                                                              YAERO   5253
      CALL FSRCH(RMACH,BRK36,4,IH26,1)                         YAERO   5254
      CALL FCALC(ALP,BND76(3),8,2)                             YAERO   5255
      CALL FSRCH(DAR,BRK38,8,IH27,3)                           YAERO   5256
      TEMP(3)=DAR                                              YAERO   5257
      CNDAR=F3D(TEMP,NPT59,BND76,HCNDAT)                       YAERO   5258
      CALL FSRCH(DAL,BRK38,8,IH28,3)                           YAERO   5259
      TEMP(3)=DAL                                              YAERO   5260
      CNDAL=F3D(TEMP,NPT59,BND76,HCNDAT)                       YAERO   5261
      CNDA=CNDAR-CNDAL                                         YAERO   5262
*                                                              YAERO   5263
*   RUDDER INCREMENT                                           YAERO   5264
*                                                              YAERO   5265
      CALL FSRCH(RMACH,BRK39,6,IH29,1)                         YAERO   5266
      CNDR=F2C(TEMP,NPT51,BND77,HCNDRT)                        YAERO   5267
*                                                              YAERO   5268
*   YAW AND ROLL RATE INCREMENTS                               YAERO   5269
*                                                              YAERO   5270
      CALL FSRCH(RMACH,BRK40,6,IH30,1)                         YAERO   5271
      CALL FSRCH(ALP,BRK44,4,IH43,2)                           YAERO   5272
      CNR=F2C(TEMP,NPT60,BND78,HCNRT)                          YAERO   5273
      CALL FCALC(ALP,BND79(3),3,2)                             YAERO   5274
      CNP=F2C(TEMP,NPT61,BND79,HCNPT)                          YAERO   5275
*                                                              YAERO   5276
*   TOTAL YAWING MOMENT COEFFICIENT                            YAERO   5277
*                                                              YAERO   5278
      CLNH=CNB*BETA+CNDA+CNDR*DRUDD/15.0                       YAERO   5279
*                                                              YAERO   5280
*   TOTAL YAWING MOMENT                                        YAERO   5281
```

```
*
      HCONF=(DCOFR-DCOFL)*5.09*QS
      HYAW=CLNH*QSA+(CNR*RSTAB+CNP*PSTAB)*RTOD*TEMPX4
      HYAW=HYAW+HCONF
*
*          **************************
*
*          ROLLING MOMENT COEFFICIENT
*
*          **************************
*
*   BASELINE
*
      CALL FSRCH(RMACH,BRK42,6,IH32,1)
      CALL FCALC(ALP,BND75(3),15,2)
      HCLLB=F2C(TEMP,NPT59,BND75,HCLBT)
*
*   FLAP INCREMENT
*
      HCLLBF=F2C(TEMP,NPT58,BND75,HCLBFT)
      HCLLBFL=HCLLBF*RMULTL*0.5
      HCLLBFR=HCLLBF*RMULTR*0.5
      HCLLBF=HCLLBFL+HCLLBFR
*
*   AILERON INCREMENT
*
      CALL FSRCH(RMACH,BRK34,4,IH33,1)
      CALL FCALC(ALP,BND76(3),6,2)
      CALL FSRCH(DAP,BRK38,8,IH34,3)
      TEMP(3)=DAR
      HCLDAR=F3D(TEMP,NPT59,BND76,HCLLDAT)
      CALL FSRCH(DAL,BRK38,6,IH35,3)
      TEMP(3)=DAL
      HCLDAL=F3D(TEMP,NPT59,BND76,HCLLDAT)
      HCLLDA=HCLDAR-HCLDAL
*
*   RUDDER INCREMENT
*
      CALL FSRCH(RMACH,BRK39,6,IH36,1)
      HCLLDR=F2C(TEMP,NPT51,BND77,HCLLDRT)
*
*   YAW AND ROLL RATE INCREMENTS
*
      CALL FSRCH(RMACH,BRK40,6,IH37,1)
      CALL FCALC(ALP,BND80(3),5,2)
      HCLLR=F2C(TEMP,NPT62,BND80,HCLLRT)
      HCLLP=F2C(TEMP,NPT62,BND80,HCLLPT)*GKCLLP
*
*   TOTAL ROLLING MOMENT COEFFICIENT
*
      HCLL=(HCLLB+HCLBP*W)*BETA+HCLLDA+HCLLDR*DRUDD/15.0
     .+HCLL3F*BETA
*
*   TOTAL ROLLING MOMENT
*
      HDCLLF=(DCLFL-DCLFR)*5.08*QS
      HROL=HCLL*QSA+(HCLLR*RSTAB+HCLLP*PSTAB)*RTOD*TEMPX4+HDCLLF
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*                                                              YAERO   5339
*        **********************                                YAERO   5340
*                                                              YAERO   5341
*        SIDE FORCE COEFFICIENT                                YAERO   5342
*                                                              YAERO   5343
*        **********************                                YAERO   5344
*                                                              YAERO   5345
*   BASELINE + FLAP INCREMENT                                  YAERO   5346
*                                                              YAERO   5347
*                                                              YAERO   5348
      CALL FSRCH (RMACH,BRK42,6,IH32,1)                        YAERO   5349
      CALL FCALC (ALP,BND81(3),15,2)                           YAERO   5350
      CALL FCALC (5.0,BND81(5),2,3)                            YAERO   5351
      TEMP(3) = DFLAPL                                         YAERO   5352
      HCYB=F3D(TEMP,NPT58,BND81,HCYBT)                         YAERO   5353
      CALL FCALC (10.0,BND81(5),2,3)                           YAERO   5354
      HCYBF=F3D(TEMP,NPT58,BND81,HCYBT)                        YAERO   5355
      HCYBF=0.5*HCYBF*(RMULTL+RMULTR)                          YAERO   5356
      HCYB=HCYB+HCYBF                                          YAERO   5357
*                                                              YAERO   5358
*   AILERON INCREMENT                                          YAERO   5359
*                                                              YAERO   5360
      CALL FCALC(DAL,BND52(1),6,1)                             YAERO   5361
      CALL FCALC(ALP,BND52(3),8,2)                             YAERO   5362
      TEMP(1)=DAL                                              YAERO   5363
      HCYDAL=F2C(TEMP,NPT63,BND52,HCYDAT)                      YAERO   5364
      CALL FCALC(DAR,BND52(1),6,1)                             YAERO   5365
      TEMP(1)=DAR                                              YAERO   5366
      HCYDAR=F2C(TEMP,NPT63,BND52,HCYDAT)                      YAERO   5367
      HCYDA=HCYDAL-HCYDAR                                      YAERO   5368
*                                                              YAERO   5369
*   RUDDER INCREMENT                                           YAERO   5370
*                                                              YAERO   5371
      CALL FSRCH(RMACH,BRK39,6,IH40,1)                         YAERO   5372
      HCYDR=F2C(TEMP,NPT51,BND77,HCYDRT)                       YAERO   5373
*                                                              YAERO   5374
*   YAW RATE INCREMENT                                         YAERO   5375
*                                                              YAERO   5376
      CALL FSRCH(RMACH,BRK40,6,IH41,1)                         YAERO   5377
      HCYR=F1B(RMACH,6,BND78,HCYRT)                            YAERO   5378
*                                                              YAERO   5379
*   TOTAL SIDE FORCE COEFFICIENT                               YAERO   5380
*                                                              YAERO   5381
      HCY=HCYB*BETA+HCYDA+HCYDR*(DRUDD/15.0)                   YAERO   5382
*                                                              YAERO   5383
*   TOTAL SIDE FORCE                                           YAERO   5384
*                                                              YAERO   5385
      HISF=HCY*QS+HCYR*WSTAB*RTOD*TEMPX4/8                     YAERO   5386
*                                                              YAERO   5387
*     TRANSFORMATIONS AND TOTAL FORCES AND MOMENTS             YAERO   5388
*                                                              YAERO   5389
      HIFL=HICL*QS+CLSTAB                                      YAERO   5390
      HIFD=(HICD + DHICD)*QS                                   YAERO   5391
      HIPM=HICM*QSC                                            YAERO   5392
      HIFX=-HIFD*COSALP+HIFL*SINALP                            YAERO   5393
      HIFZ=-HIFL*COSALP-HIFD*SINALP                            YAERO   5394
      HIRM=HROL*COSALP-HYAW*SINALP                             YAERO   5395
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SUBROUTINE AEROY88    74/175  OPT=2                    FTN 4.8+538    82/10/22. 15.12.40    PAGE   35

              HIYM=HYAW*COSALP+HROL*SINALP                                         YAERO    5396
              HIPM=HIPM+HIFZ*(CGREF-CG)*CBAR+HIFX*(CGWL-96.)/12.                   YAERO    5397
              HIRM=HIRM-HISF*((CGWL-96.)/12.)-HIFZ*(CGBL/12.)                      YAERO    5398
              HIYM=HIYM+HISF*((CGFS-346.6)/12.)+HIFX*(CGBL/12.)                    YAERO    5399
       *                                                                           YAERO    5400
              IF(RMACH.GE.0.5) GO TO 902                                           YAERO    5401
       *                                                                           YAERO    5402
       *      LINEAR RAMP ON FORCES AND MOMENTS FROM M=0.3 TO 0.5                  YAERO    5403
       *                                                                           YAERO    5404
              RATIO=(RMACH-0.3)*5.0                                                YAERO    5405
              RATIO=AMIN1(1.,AMAX1(RATIO,0.))                                      YAERO    5406
              AEROX=(HIFX-AEROX)*RATIO+AEROX                                       YAERO    5407
              AEROY=(HISF-AEROY)*RATIO+AEROY                                       YAERO    5408
              AEROZ=(HIFZ-AEROZ)*RATIO+AEROZ                                       YAERO    5409
              AEROM=(HIPM-AEROM)*RATIO+AEROM                                       YAERO    5410
              AERON=(HIYM-AERON)*RATIO+AERON                                       YAERO    5411
              AEROL=(HIRM-AEROL)*RATIO+AEROL                                       YAERO    5412
              GO TO 901                                                            YAERO    5413
          902 CONTINUE                                                             YAERO    5414
              AEROX=HIFX                                                           YAERO    5415
              AEROZ=HIFZ                                                           YAERO    5416
              AEROM=HIPM                                                           YAERO    5417
              AEROL=HIRM                                                           YAERO    5418
              AERON=HIYM                                                           YAERO    5419
              AEROY=HISF                                                           YAERO    5420
          901 CONTINUE                                                             YAERO    5421
       *                                                                           YAERO    5422
              RETURN                                                               YAERO    5423
       *                                                                           YAERO    5424
              END                                                                  YAERO    5425
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    SYMBOLIC REFERENCE MAP (R=2)

ENTRY POINTS      DEF LINE      REFERENCES
   1  AEROY88         1         1966

VARIABLES      SN  TYPE          RELOCATION
 1750  A           REAL        ARRAY   FARRAY      REFS       66     14*71     8*86    13*95    5*109   12*115    8*128
                                                11*137   10*149   16*160   15*177    4*133    6*198   11*205   16*287
                                                 7*234   10*242   15*253   14*269      352
 7576  ARETAP      REAL                            REFS      641      648      652      676      684      970      963
                                                   966      969      972     1002     1009     1013     1015     1019
                                                  1041     1044     1047     1415     1418  DEFINED      627
 2460  AEROL       REAL                FARRAY      REFS      115     1473     1477     1432     1485   2*1955
                                               DEFINED     1468     1473     1477     1482     1485     1955     1961
 2461  AEROM       REAL                FARRAY      REFS      115     1465   2*1953  DEFINED     1464     1465     1963
                                                  1960
 2462  AERON       REAL                FARRAY      REFS      115     1474     1478     1483     1486   2*1954
                                               DEFINED     1470     1474     1479     1483     1486     1954     1962
 2455  AEROX       REAL                FARRAY      REFS      115     1460     1465     1486   2*1950
                                               DEFINED     1459     1460     1950     1958
 2456  AEROY       REAL                FARRAY      REFS      115     1472     1476     1481     1495     1496   2*1951
                                               DEFINED     1467     1472     1476     1481     1951     1963
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      SUBROUTINE AEROYBB      74/175  OPT=2                                        FTN 4.8+538        82/10/22. 15.12.40        PAGE    36

VARIABLES        SN  TYPE            RELOCATION
  2457  AEROZ        REAL                FARRAY     REFS         115      1462      1463      1465      1485     2*1952
                                                 DEFINED        1461      1462      1463      1952      1959
  2134  ALP          REAL                FARRAY     REFS          71       613       615     2*693       694       695       696
                                                     698         699       700       710       726       747     3*748       749
                                                     764         788       798       803       804       815       839       876
                                                     893        1089      1111      1112      1113      1114      1143      1150
                                                    1162        1176      1247      1255    2*1503      1513      1515    2*1518
                                                    1520        1521    2*1523    2*1524    2*1525      1535      1538      1544
                                                    1547        1558      1587      1589    2*1606      1616      1618    2*1621
                                                    1623        1624    2*1626      1639      1642      1667      1670    2*1685
                                                    1702        1703    2*1705    2*1706    2*1707      1717      1720      1734
                                                    1737        1745      1748      1760      1790      1792      1798      1815
                                                    1817        1839      1852      1869      1893      1905
  7632  ALPC         REAL                           REFS         712      1190   DEFINED       710
   301  ALPCT        REAL      ARRAY     ARDARRY    REFS           9       287       709
  2142  ALPD         REAL                FARRAY     REFS          71      1461      1464      1592
  2451  ALPF         REAL                FARRAY     REFS         109       817       826       836   DEFINED       804
 10164  ALPP         REAL                           REFS        1526      1627      1708      1709   DEFINED      1524      1525
                                                    1706        1707      1709
  2450  ALPT         REAL                FARRAY     REFS         109       814       825       833   DEFINED       803
     0  ARD          REAL      ARRAY     ARDARRY    REFS           7      43*9     38*26     39*41     15*57
  2464  B            REAL                FARRAY     REFS         115     2*593       598      1929   DEFINED       565
  2135  BETA         REAL                FARRAY     REFS          71       886       887       888       889       901       902
                                                     903         905       906       907      1822    2*1875      1925
  7766  BETAK06      REAL                           REFS        1009   DEFINED      1005
  7764  BETAK08      REAL                           REFS        1002   DEFINED      1001
  7767  BETAK16      REAL                           REFS      2*1009   DEFINED      1008
  7763  BETAK18      REAL                           REFS      2*1002   DEFINED       998
  2607  BETAP        REAL                FARRAY     REFS         193       624       627       628       629       630     2*631
                                                   2*632     DEFINED       623       624       625       626
  7601  BETAPP       REAL                           REFS         933       947       957      1424      1434      1441
                                                 DEFINED         630       631       632
 10536  BND1         REAL      ARRAY                REFS         370       694       695       696      1521      1624      1703
                                                 DEFINED         428
 10604  BND10        REAL      ARRAY                REFS         370       790   DEFINED       428
 10610  BND11        REAL      ARRAY                REFS         374       793       801   DEFINED       428
 10616  BND12        REAL      ARRAY                REFS         370       811   DEFINED       428
 10622  BND13        REAL      ARRAY                REFS         370       816       818       819   DEFINED       428
 10630  BND14        REAL      ARRAY                REFS         370       835       837       838   DEFINED       428
 10634  BND15        REAL      ARRAY                REFS         370       840       841   DEFINED       428
 10640  BND16        REAL      ARRAY                REFS         370       771       772       774       775       776
                                                 DEFINED         428
 10644  BND17        REAL      ARRAY                REFS         370      1179   DEFINED       428
 10652  BND18        REAL      ARRAY                REFS         370      1250      1251      1252   DEFINED       428
 10660  BND19        REAL      ARRAY                REFS         370       741       743   DEFINED       447
 10540  BND2         REAL      ARRAY                REFS         370       698       699       700   DEFINED       428
 10664  BND20        REAL      ARRAY                REFS         370       745       746   DEFINED       447
 10666  BND21        REAL      ARRAY                REFS         370      1152      1154      1155   DEFINED       447
 10674  BND22        REAL      ARRAY                REFS         370      1193   DEFINED       447
 10676  BND23        REAL      ARRAY                REFS         370      1156      1157      1396   DEFINED       447
 10702  BND24        REAL      ARRAY                REFS         370       878       883       884   DEFINED       447
 10706  BND25        REAL      ARRAY                REFS         370       894       895       896   DEFINED       447
 10712  BND26        REAL      ARRAY                REFS         376      1091      1092      1093      1096      1097      1098
                                                    1111        1112      1113      1114   DEFINED       447
 10716  BND27        REAL      ARRAY                REFS         376      1298      1300      1301      1303      1305
                                                 DEFINED         447
 10722  BND28        REAL      ARRAY                REFS         376      1315      1316      1317      1319      1320      1321
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       SUBROUTINE AERDY8R    74/175  OPT=2                              FTN 4.8+538       82/10/22. 15.12.40      PAGE   37
VARIABLES      SN   TYPE          RELOCATION
                                                 1322       1323      1354      1355      1356      1357      1358
                                              DEFINED        447
10730  BND29      REAL       ARRAY               REFS        376       916       918       919   DEFINED       447
10542  BND3       REAL       ARRAY               REFS        370       707       709   DEFINED       428
10734  BND30      REAL       ARRAY               REFS        376       923       926   DEFINED       447
10742  BND31      REAL       ARRAY               REFS        376       928       929   DEFINED       447
10746  BND32      REAL       ARRAY               REFS        376       930       931   DEFINED       447
10752  BND33      REAL       ARRAY               REFS        376       938       942       943   DEFINED       447
10756  BND34      REAL       ARRAY               REFS        376       951       956   DEFINED       447
10764  BND35      REAL       ARRAY               REFS        376      1407      1409      1413   DEFINED       447
10772  BND36      REAL       ARRAY               REFS        376      1415      1420      1421      1422
                                              DEFINED        447
11000  BND37      REAL       ARRAY               REFS        376      1430      1435      1437   DEFINED       466
11004  BND38      REAL       ARRAY               REFS        376       962       963       968   DEFINED       466
11012  BND39      REAL       ARRAY               REFS        376       969       973       975      1019
                                              DEFINED        466
10546  BND4       REAL       ARRAY               REFS        370       715       717   DEFINED       429
11020  BND40      REAL       ARRAY               REFS        376       976       977      1020      1047
                                              DEFINED        466
11026  BND41      REAL       ARRAY               REFS        376       982       983       985   DEFINED       466
11034  BND42      REAL       ARRAY               REFS        376       992       994       998       999      1001      1006
                                              DEFINED        466
11042  BND43      REAL       ARRAY               REFS        376      1004      1005      1008   DEFINED       466
11050  BND44      REAL       ARRAY               REFS        376      1013      1014      1017      1018      1041      1043
                                                 1045       1046   DEFINED       466
11056  BND45      REAL       ARRAY               REFS        376      1027      1029      1031      1039
                                              DEFINED        466
11064  BND46      REAL       ARRAY               REFS        376       880       881   DEFINED       466
11070  BND47      REAL       ARRAY               REFS        376      1255   DEFINED       466
10554  BND5       REAL       ARRAY               REFS        370       765       767       768       825       926
                                              DEFINED        428
11072  BND52      REAL       ARRAY               REFS        376      1586      1587      1590      1591      1593      1904
                                                 1905       1907      1909      1910   DEFINED       465
11076  BND53      REAL       ARRAY               REFS        382      1580      1581   DEFINED       465
11100  BND55      REAL       ARRAY               REFS        382      1203      1204      1264   DEFINED       480
11102  BND56      REAL       ARRAY               REFS        382      1215      1216      1269   DEFINED       480
11104  BND59      REAL       ARRAY               REFS        382       945   DEFINED       480
10560  BND6       REAL       ARRAY               REFS        376      1144      1146      1147      1163      1164      1165
                                                 1665       1667      1671      1672      1676   DEFINED       428
11110  BND60      REAL       ARRAY               REFS        382      1021      1022   DEFINED       480
11116  BND61      REAL       ARRAY               REFS        382      1032      1034   DEFINED       480
11124  BND62      REAL       ARRAY               REFS        382      1036   DEFINED       480
11132  BND63      REAL       ARRAY               REFS        382      1049      1050   DEFINED       480
11140  BND64      REAL       ARRAY               REFS        382      1375      1376      1377      1378
                                              DEFINED        480
11146  BND65      REAL       ARRAY               REFS        382      1426      1432      1439   DEFINED       480
11154  BND66      REAL       ARRAY               REFS        382      1513      1517      1616      1620
                                              DEFINED        480
11160  BND67      REAL       ARRAY               REFS        382      1535      1540      1579   DEFINED       480
11166  BND68      REAL       ARRAY               REFS        382      1544      1545      1549      1550      1552      1639
                                                 1640       1645      1646      1648      1717      1718      1723      1724
                                                 1726    DEFINED       480
11174  BND69      REAL       ARRAY               REFS        382      1558      1559      1563      1564      1569
                                              DEFINED        480
10566  BND7       REAL       ARRAY               REFS        370      1192   DEFINED       428
11202  BND70      REAL       ARRAY               REFS        382      1654      1658      1659      1661
                                              DEFINED        480
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VARIABLES     SN  TYPE           RELOCATION
11206  BND71      REAL        ARRAY                 REFS       382       1699    DEFINED     493
11212  BND72      REAL        ARRAY                 REFS       382       1734     1738       1741    DEFINED    480
11220  BND73      REAL        ARRAY                 REFS       382       1745     1746       1751     1753      1758
                                                 DEFINED       497
11226  BND74      REAL        ARRAY                 REFS       382       1760     1763       1818    DEFINED    497
11232  BND75      REAL        ARRAY                 REFS       382       1790     1793       1839     1840      1844
                                                 DEFINED       497
11236  BND76      REAL        ARRAY                 REFS       382       1798     1801       1804     1852      1855     1858
                                                 DEFINED       497
11244  BND77      REAL        ARRAY                 REFS       382       1810     1864       1916    DEFINED    497
11250  BND78      REAL        ARRAY                 REFS       382       1916     1921    DEFINED     497
11254  BND79      REAL        ARRAY                 REFS       382       1817    DEFINED     497
10572  BND8       REAL        ARRAY                 REFS       370        720      722    DEFINED     428
11260  BND80      REAL        ARRAY                 REFS       382       1869     1870       1871    DEFINED    497
11264  BND81      REAL        ARRAY                 REFS       382       1893     1894       1895     1897      1898
                                                 DEFINED       497
10576  BND9       REAL        ARRAY                 REFS       370        729      730        732      735
                                                 DEFINED       428
11272  BRK1       REAL        ARRAY                 REFS       389        708     1249    DEFINED     507
11433  BRK10      REAL        ARRAY                 REFS       389        939   DEFINED       516
11436  BRK11      REAL        ARRAY                 REFS       389        944   DEFINED       516
11443  BRK12      REAL        ARRAY                 REFS       389        952   DEFINED       516
11446  BRK13      REAL        ARRAY                 REFS       389        953   DEFINED       516
11453  BRK14      REAL        ARRAY                 REFS       389        964      970       1028     1037      1408
                                                 DEFINED       516
11457  BRK15      REAL        ARRAY                 REFS       389        993     1033       1042     1427      1436
                                                 DEFINED       516
11462  BRK16      REAL        ARRAY                 REFS       389       1048     1431       1439    DEFINED    516
11466  BRK17      REAL        ARRAY                 REFS       389       1035   DEFINED       516
11473  BRK18      REAL        ARRAY                 REFS       389       1536   DEFINED       528
11503  BRK19      REAL        ARRAY                 REFS       396       1520   DEFINED       529
11305  BRK2       REAL        ARRAY                 REFS       389       1145     1666       1673    DEFINED    507
11532  BRK20      REAL        ARRAY                 REFS       396       1534   DEFINED       528
11544  BRK22      REAL        ARRAY                 REFS       396       1546     1641    DEFINED     529
11554  BRK25      REAL        ARRAY                 REFS       396       1623   DEFINED       528
11600  BRK28      REAL        ARRAY                 REFS       396       1655   DEFINED       528
11604  BRK29      REAL        ARRAY                 REFS       396       1695   DEFINED       529
11320  BRK3       REAL        ARRAY                 REFS       389        731      734        879    DEFINED    507
11614  BRK30      REAL        ARRAY                 REFS       396       1696   DEFINED       529
11643  BRK31      REAL        ARRAY                 REFS       396       1732     1739    DEFINED     540
11654  BRK32      REAL        ARRAY                 REFS       396       1733   DEFINED       540
11661  BRK33      REAL        ARRAY                 REFS       396       1747   DEFINED       540
11665  BRK34      REAL        ARRAY                 REFS       396       1761     1797       1851    DEFINED    540
11671  BRK35      REAL        ARRAY                 REFS       396       1702   DEFINED       540
11713  BRK36      REAL        ARRAY                 REFS       396       1560     1565    DEFINED     540
11727  BRK37      REAL        ARRAY                 REFS       396       1514     1617    DEFINED     540
11740  BRK38      REAL        ARRAY                 REFS       396       1799     1802       1853     1856
                                                 DEFINED       548
11750  BRK39      REAL        ARRAY                 REFS       396       1809     1863       1915    DEFINED    548
11323  BRK4       REAL        ARRAY                 REFS       389       1153   DEFINED       507
11756  BRK40      REAL        ARRAY                 REFS       396       1814     1868       1920    DEFINED    548
11764  BRK41      REAL        ARRAY                 REFS       396       1577   DEFINED       549
11771  BRK42      REAL        ARRAY                 REFS       396       1789     1838       1892    DEFINED    548
11777  BRK44      REAL        ARRAY                 REFS       396       1815   DEFINED       549
12003  BRK48      REAL        ARRAY                 REFS       396       1719   DEFINED       549
11337  BRK5       REAL        ARRAY                 REFS       389       1299     1304    DEFINED     507
11363  BRK6       REAL        ARRAY                 REFS       389       1302   DEFINED       507
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VARIABLES       SN  TYPE              RELOCATION
 11415  BRK7        REAL          ARRAY               REFS       389       917   DEFINED     516
 11421  BRK8        REAL          ARRAY               REFS       389       924      1416  DEFINED      516
 11430  BRK9        REAL          ARRAY               REFS       389       925      1417  DEFINED      516
  2504  CA          REAL                   FARRAY     REFS       128      1457      1458     1459  DEFINED     1452
  7665  CAAILL      REAL                              REFS       778   DEFINED       776
  7663  CAAILR      REAL                              REFS       778   DEFINED       772
  3771  CAAILT      REAL          ARRAY    ARDARRY    REFS         9       287       772      776
  7627  CABASE      REAL                              REFS      1127   DEFINED       696      700
 10032  CABASIC     REAL                              REFS      1452   DEFINED      1127
  3565  CABAS1T     REAL          ARRAY    ARDARRY    REFS         9       287       700
  3612  CABAS2T     REAL          ARRAY    ARDARRY    REFS         9       287       696
 10102  CAFJI       REAL                              REFS      1242      1244   DEFINED     1226       1230       1234       1239
  3727  CAFJIT      REAL          ARRAY    ARDARRY    REFS         9       287      1193
 26630  CAFJI1T     REAL          ARRAY    ARDARRY    REFS        41       325      1204
 26643  CAFJI2T     REAL          ARRAY    ARDARRY    REFS        41       325      1216
  7651  CAFLAP      REAL                              REFS       753      1127   DEFINED      744        753        758
  7650  CAFLAPL     REAL                              REFS       744      1119   DEFINED      743
  7647  CAFLAPR     REAL                              REFS       744      1119   DEFINED      741
  3657  CAFLAPT     REAL          ARRAY    ARDARRY    REFS         9       287       741      743
  2513  CAGE        REAL                   FARRAY     REFS       137      1459   DEFINED     1332       1337       1348       1366
                                                      1392      1386      1391
 10135  CAGE50      REAL                              REFS    2*1366      1382   DEFINED     1360
  3017  CAGE55      REAL                   FARRAY     REFS       242      1325      1342   2*1348       1360       1366
                                                   DEFINED      1316      1342
  7132  CAGE55T     REAL          ARRAY    ARDARRY    REFS        26       299      1316
 10132  CAGE60      REAL                              REFS    2*1332      1337      1348  DEFINED     1325
 10124  CAGE81      REAL                              REFS      1307   DEFINED      1303
  6126  CAGE81T     REAL          ARRAY    ARDARRY    REFS        26       299      1303
 10211  CALP        REAL                              REFS      1678      1679   DEFINED     1677       1678
  2516  CAPOWER     REAL                   FARRAY     REFS       137      1452   DEFINED     1244
  4022  CAPTWT      REAL          ARRAY    ARDARRY    REFS         9       287      1155
 10036  CA10        REAL                              REFS      1158      1159   DEFINED     1155
 10037  CA55        REAL                              REFS    2*1159   DEFINED      1157
  4162  CA55T       REAL          ARRAY    ARDARRY    REFS         9       287      1157
  2465  CBAR        REAL                   FARRAY     REFS       115       580       585      586        597       1465       1940
                                                   DEFINED       566
  2502  CD          REAL                   FARRAY     REFS       128      1498   DEFINED     1459
  2544  CDBASE      REAL                   FARRAY     REFS       160      1772   DEFINED     1704       1709       1712
 10216  CDBAS1      REAL                              REFS      1704    2*1709   DEFINED     1703
 10214  CDBAS2      REAL                              REFS      1709      1712   DEFINED     1699
  2567  CDDR        REAL                   FARRAY     REFS       177      1772   DEFINED     1763
  2565  CDSTAB      REAL                   FARRAY     REFS       177      1772   DEFINED     1756
  2365  CG          REAL                   FARRAY     REFS        86      1465      1940
  2345  CGBL        REAL                   FARRAY     REFS        86      1485      1486     1941       1942
  2344  CGFS        REAL                   FARRAY     REFS        86      1486      1942
  2474  CGREF       REAL                   FARRAY     REFS       115      1465      1940  DEFINED      568
  2346  CGWL        REAL                   FARRAY     REFS        86      1465      1485     1940       1941
  2501  CL          REAL                   FARRAY     REFS       128      1487   DEFINED     1457
  2543  CLBASE      REAL                   FARRAY     REFS       160      1684      1696     1698     2*1700
                                                   DEFINED      1625      1627      1630
 10204  CLBAS1      REAL                              REFS      1625      1627   DEFINED     1624
 10202  CLBAS2      REAL                              REFS    2*1627      1630   DEFINED     1620
  2651  CLL         REAL                   FARRAY     REFS       217      1468   DEFINED     1455
 10021  CLLAILL     REAL                              REFS      1101   DEFINED      1092
 10024  CLLAILR     REAL                              REFS      1101   DEFINED      1097
  5012  CLLAILT     REAL          ARRAY    ARDARRY    REFS         9       299      1092     1097
  2757  CLLBAS      REAL                   FARRAY     REFS       234      1455   DEFINED     1129
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VARIABLES      SN  TYPE              RELOCATION
  2761  CLLBASE    REAL                   FARRAY     REFS      236      902      1073     1129   DEFINED      880      902
                                                     1068     1081
  4632  CLLBAST    REAL          ARRAY    ARDARRY    REFS        9      299       880
  3274  CLLBAT     REAL                   FARRAY     REFS      269     1078      1482   DEFINED     1073     1078
  2521  CLLDR      REAL                   FARRAY     REFS      137     1106   DEFINED      571
  3031  CLLP       REAL                   FARRAY     REFS      242     1468   DEFINED     1113
  7726  CLLPOW     REAL                              REFS      898      906   DEFINED      895      899
  2760  CLLPOWR    REAL                   FARRAY     REFS      234     1455   DEFINED      906
  4662  CLLPOWT    REAL          ARRAY    ARDARRY    REFS        9      299       895
  5172  CLLPT      REAL          ARRAY    ARDARRY    REFS        9      299      1113
  3030  CLLR       REAL                   FARRAY     REFS      242     1468   DEFINED     1111
  5162  CLLRT      REAL          ARRAY    ARDARRY    REFS        9      299      1111
  3275  CLN        REAL                   FARRAY     REFS      269     1470   DEFINED     1456
 10022  CLNAILL    REAL                              REFS     1100  DEFINED      1093
 10025  CLNAILR    REAL                              REFS     1100  DEFINED      1098
  5372  CLNAILT    REAL          ARRAY    ARDARRY    REFS        9      299      1093     1098
  3276  CLNBAS     REAL                   FARRAY     REFS      269     1456   DEFINED     1130
  3300  CLNBASE    REAL                   FARRAY     REFS      269      903      1074     1130   DEFINED      881      903
                                                     1069     1082
  5202  CLNBAST    REAL          ARRAY    ARDARRY    REFS        9      299       881
  2431  CLNBAT     REAL                   FARRAY     REFS       95     1079      1483   DEFINED     1074     1079
  2522  CLNDR      REAL                   FARRAY     REFS      137     1107   DEFINED      572
  2435  CLNH       REAL                   FARRAY     REFS       95     1827   DEFINED     1822
  2425  CLNP       REAL                   FARRAY     REFS       95     1470   DEFINED     1114
  7727  CLNPOW     REAL                              REFS      899      907   DEFINED      896      899
  3277  CLNPOWR    REAL                   FARRAY     REFS      269     1456   DEFINED      907
  5232  CLNPOWT    REAL          ARRAY    ARDARRY    REFS        9      299       896
  5532  CLNPT      REAL          ARRAY    ARDARRY    REFS       26      299      1114
  2424  CLNR       REAL                   FARRAY     REFS       95     1470   DEFINED     1112
  5542  CLNRT      REAL          ARRAY    ARDARRY    REFS       26      299      1112
  2564  CLSTAB     REAL                   FARRAY     REFS      177     1933   DEFINED     1635
  2505  CM         REAL                   FARRAY     REFS      128     1464   DEFINED     1453
  7654  CMAILL     REAL                              REFS      777  DEFINED       775
  7652  CMAILR     REAL                              REFS      777  DEFINED       771
  1767  CMAILT     REAL          ARRAY    ARDARRY    REFS        9      287       771      775
  2476  CMALPD     REAL                   FARRAY     REFS      115      862      1464   DEFINED      607
 10177  CMALPDH    REAL                              REFS     1604  DEFINED      1582
  2657  CMALPDT    REAL                   FARRAY     REFS      217     1582   DEFINED     1581
  2542  CMBASE     REAL                   FARRAY     REFS      160     1126   DEFINED      695      699
 10163  CMBASEH    REAL                              REFS     1604  DEFINED      1522     1526     1529
 10031  CMBASIC    REAL                              REFS     1453  DEFINED      1126
 10162  CMBASI     REAL                              REFS     1522     1526   DEFINED     1521
  1576  CMBASIT    REAL          ARRAY    ARDARRY    REFS        9      287       699
 10160  CMBAS2     REAL                              REFS   2*1526     1529   DEFINED     1517
  1623  CMBAS2T    REAL          ARRAY    ARDARRY    REFS        9      287       695
 10120  CMFJI      REAL                              REFS     1284  DEFINED      1272     1275     1279     1283
  3303  CMFJIT     REAL          ARRAY    ARDARRY    REFS        9      287      1252
 26666  CMFJI1T    REAL          ARRAY    ARDARRY    REFS       41      325      1264
 26701  CMFJI2T    REAL          ARRAY    ARDARRY    REFS       41      325      1269
  7636  CMFLAL     REAL                              REFS      723  DEFINED       720
  7640  CMFLAP     REAL                              REFS      738     1126   DEFINED      723      739      757
  1670  CMFLAPT    REAL          ARRAY    ARDARRY    REFS        9      287       720      722
  7637  CMFLAR     REAL                              REFS      723  DEFINED       722
  7675  CMFUP      REAL                              REFS      821      822       828   DEFINED      819      821
  7677  CMF25      REAL                              REFS      829      847   DEFINED      826
  2453  CMF62      REAL                   FARRAY     REFS      109      843       844      846   DEFINED      838      843
  2514  CMGE       REAL                   FARRAY     REFS      137     1402      1465   DEFINED     1333     1338     1349
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VARIABLES      SN   TYPE          RELOCATION
                                                  1367     1380     1387     1392     1402
   2115   CMGE10     REAL                FARRAY   REFS      198   2*1380  DEFINED     1379
  10136   CMGE50     REAL                         REFS   2*1367     1380  DEFINED     1361
   3020   CMGE55     REAL                FARRAY   REFS      242     1326     1343   2*1349     1361     1367
                                               DEFINED     1317     1343
   7512   CMGE55T    REAL         ARRAY  ARDARRY  REFS       26      299     1317
  10133   CMGE60     REAL                         REFS   2*1333     1338     1349  DEFINED     1326
   3015   CMGE81     REAL                FARRAY   REFS      242     1308  DEFINED     1305
   6362   CMGE81T    REAL         ARRAY  ARDARRY  REFS       26      299     1305
  10104   CMJ25      REAL                         REFS     1253     1254  DEFINED     1252
  10105   CMJ25L     REAL                         REFS     1260   2*1265     1275  DEFINED     1253     1260
  10106   CMJ25R     REAL                         REFS     1261   2*1266     1275  DEFINED     1254     1261
  10112   CMJ45      REAL                         REFS     1265     1266  DEFINED     1264
  10113   CMJ45L     REAL                         REFS   2*1270     1278  DEFINED     1265
  10114   CMJ45R     REAL                         REFS   2*1271     1278  DEFINED     1266
  10115   CMJ62      REAL                         REFS     1270     1271  DEFINED     1269
  10116   CMJ62L     REAL                         REFS     1272  DEFINED     1270
  10117   CMJ62R     REAL                         REFS     1272  DEFINED     1271
   2517   CMPOWER    REAL                FARRAY   REFS      137     1453  DEFINED     1246
   2475   CMO        REAL                FARRAY   REFS      115      961     1464  DEFINED      606
  10176   CMOH       REAL                         REFS     1604  DEFINED     1579
   2656   CMOT       REAL                FARRAY   REFS      217     1579  DEFINED     1578
   2570   CMSTING    REAL                FARRAY   REFS      177     1600     1604  DEFINED     1598     1599     1600
   7700   CMSTUP     REAL                         REFS      830  DEFINED      828
   7701   CMST25     REAL                         REFS    2*830    2*848  DEFINED      829      847
   7703   CMST62     REAL                         REFS      848  DEFINED      846
   7674   CMTUP      REAL                         REFS      820      822      828  DEFINED      816      820
   7676   CMT25      REAL                         REFS      829      847  DEFINED      825
   2452   CMT62      REAL                FARRAY   REFS      109      942      844      846  DEFINED      835      842
   2503   CN         REAL                FARRAY   REFS      128     1457     1458     1461  DEFINED     1451
   7657   CNAILL     REAL                         REFS      769  DEFINED      765
   7660   CNAILR     REAL                         REFS      769  DEFINED      768
    262   CNAILT     REAL         ARRAY  ARDARRY  REFS        9      287      765      768
   7713   CNALPD     REAL                         REFS     1461  DEFINED      862
   2530   CNB        REAL                FARRAY   REFS      149     1822  DEFINED     1793
   7626   CNBASE     REAL                         REFS     1125  DEFINED      694      698
  10030   CNBASIC    REAL                         REFS     1451  DEFINED     1125
      0   CNBASIT    REAL         ARRAY  ARDARRY  REFS        9      287      698
     25   CNBAS2T    REAL         ARRAY  ARDARRY  REFS        9      287      694
   2531   CNDA       REAL                FARRAY   REFS      149     1822  DEFINED     1805
  10240   CNDAL      REAL                         REFS     1805  DEFINED     1804
  10236   CNDAR      REAL                         REFS     1805  DEFINED     1801
   2534   CNDR       REAL                FARRAY   REFS      149     1822  DEFINED     1919
  10101   CNFJT      REAL                         REFS     1241     1243  DEFINED     1225     1229     1233     1238
    472   CNFJIT     REAL         ARRAY  ARDARRY  REFS        9      287     1192
  26572   CNFJ11T    REAL         ARRAY  ARDARRY  REFS       41      325     1203
  26605   CNFJ12T    REAL         ARRAY  ARDARRY  REFS       41      325     1215
   7635   CNFLAP     REAL                         REFS     1125  DEFINED      718      756
   7634   CNFLAPL    REAL                         REFS      718     1118  DEFINED      717
   7633   CNFLAPR    REAL                         REFS      718     1118  DEFINED      715
     72   CNFLAPT    REAL         ARRAY  ARDARRY  REFS        9      287      715      717
   2512   CNGE       REAL                FARRAY   REFS      137     1462  DEFINED     1331     1336     1347     1365
                                                  1381     1385     1390
  10134   CNGE50     REAL                         REFS   2*1365     1381  DEFINED     1359
   3016   CNGE55     REAL                FARRAY   REFS      242     1324     1341   2*1347     1359     1365
                                               DEFINED     1315     1341
   6552   CNGE55T    REAL         ARRAY  ARDARRY  REFS       26      299     1315
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VARIABLES      SN  TYPE           RELOCATION
10131  CNGF60      REAL                           REFS    2*1331    1336     1347    DEFINED   1324
10122  CNGE81      REAL                           REFS      1306   DEFINED   1300
 5572  CNGF81T     REAL     ARRAY    ARDARRY      REFS        26     299     1300
10245  CNP         REAL                           REFS      1827   DEFINED   1818
 2515  CNPOWER     REAL              FARRAY       REFS       137    1481    DEFINED   1243
  556  CNPUWT      REAL     ARRAY    ARDARRY      REFS         9     287     1147      1671      1676
 7712  CNO         REAL                           REFS      1461   DEFINED    861
10244  CNR         REAL                           REFS      1827   DEFINED   1816
 2137  COSALP      REAL              FARRAY       REFS        71     581      582       864       865      1457      1458
                                                  1677      1936    1937     1938      1939
 2125  COSPHI      REAL              FARRAY       REFS        71     621      634
 7554  CO2V        REAL                           REFS      1579    1582    DEFINED     580
 7573  CTHALP      REAL                           REFS       622   DEFINED    619
 2642  CY          REAL              FARRAY       REFS       217    1467    DEFINED    1454
10020  CYAILL      REAL                           REFS      1099   DEFINED   1091
10023  CYAILR      REAL                           REFS      1099   DEFINED   1096
 4462  CYAILT      REAL     ARRAY    ARDARRY      REFS         9     299     1091      1096
 2645  CYBASE      REAL              FARRAY       REFS       217     901     1075      1129    DEFINED    978       901
                                                  1070      1083
 2643  CYBASIC     REAL              FARRAY       REFS       217    1454    DEFINED    1128
 4322  CYBAST      REAL     ARRAY    ARDARRY      REFS         9     287      878
 3273  CYBAT       REAL              FARRAY       REFS       269    1080     1481    DEFINED    1076      1080
 2520  CYOR        REAL              FARRAY       REFS       137    1105    DEFINED     570
 7725  CYPUW       REAL                           REFS       897     905    DEFINED     894       897
 2644  CYPOWER     REAL              FARRAY       REFS       217    1454    DEFINED     905
 4252  CYPOWT      REAL     ARRAY    ARDARRY      REFS         9     287      894
 2740  DAL         REAL              FARRAY       REFS       217     763      773      1090      1591      1592      1654
                                                  1656      1732    1735     1802      1803      1856      1857      1904
                                                  1906
 7631  DALPC       REAL                           REFS       710   DEFINED    709
 2741  DAR         REAL              FARRAY       REFS       217     766     1095      1586      1588      1659      1660
                                                  1739      1740    1799     1800      1853      1854      1908      1909
 7652  DCA         REAL                           REFS       750     751      753    DEFINED     745       752
 7667  DCAAIL      REAL                           REFS      1127   DEFINED    778
10027  DCAFJT      REAL                           REFS      1121   DEFINED   1242
 7715  DCAGFAR     REAL                           REFS      1127   DEFINED    864
10051  DCAJ25      REAL                           REFS      1199    1200    DEFINED    1193
10057  DCAJ25L     REAL                           REFS    2*1211    1230    DEFINED    1199
10060  DCAJ25R     REAL                           REFS    2*1212    1230    DEFINED    1200
10062  DCAJ45      REAL                           REFS      1211    1212    DEFINED    1204
10067  DCAJ45L     REAL                           REFS    2*1223    1234    DEFINED    1211
10070  DCAJ45R     REAL                           REFS    2*1224    1234    DEFINED    1212
10072  DCAJ62      REAL                           REFS      1223    1224    DEFINED    1216
10077  DCAJ62L     REAL                           REFS      1226   DEFINED   1223
10100  DCAJ62R     REAL                           REFS      1226   DEFINED   1224
 7655  DCAL        REAL                           REFS       752    1119    DEFINED     750
 7716  DCALID      REAL                           REFS      1127   DEFINED    865
10042  DCAPOT      REAL                           REFS      1172    1460    DEFINED    1166      1172
10040  DCAPOW      REAL                           REFS      1166    1244    DEFINED    1159      1159      1174
 7656  DCAR        REAL                           REFS       752    1119    DEFINED     751
 7714  DCASTAB     REAL                           REFS      1127   DEFINED    863
 3745  DCAT        REAL     ARRAY    ARDARRY      REFS         9     287      745
 3042  DCA50       REAL              FARRAY       REFS       253    1360    DEFINED    1357
10262  DCA50T      REAL     ARRAY    ARDARRY      REFS        26     299     1357
 3040  DCA60       REAL              FARRAY       REFS       242    1325    DEFINED    1323
10356  DCA60T      REAL     ARRAY    ARDARRY      REFS        26     299     1323
 2556  DCDAL       REAL              FARRAY       REFS       160    1772    DEFINED    1739
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VARIABLES        SN   TYPE              RELOCATION
   2557  DCDAR        REAL                  FARRAY     REFS       160      1772   DEFINED     1741
   2524  DCDFL        REAL                  FARRAY     REFS       137      1727      1772     1826   DEFINED     1723     1727
   2525  DCDFR        REAL                  FARRAY     REFS       137      1728      1772     1826   DEFINED     1726     1728
  10224  DCDSTAR      REAL                             REFS      1756   DEFINED      1751
  10226  DCDTRIM      REAL                             REFS      1756   DEFINED      1755
   2554  DCLAL        REAL                  FARRAY     REFS       160      1684   DEFINED     1658
   2555  DCLAR        REAL                  FARRAY     REFS       160      1684   DEFINED     1661
   2551  DCLFL        REAL                  FARRAY     REFS       160      1649      1684     1880   DEFINED     1645     1649
   2552  DCLFR        REAL                  FARRAY     REFS       160      1650      1684     1890   DEFINED     1648     1650
   2762  DCLLAIL      REAL                  FARRAY     REFS       234      1129   DEFINED     1101
   3254  DCLLF        REAL                  FARRAY     REFS       269      1468   DEFINED     1118
   3261  DCLLFJI      REAL                  FARRAY     REFS       269      1468   DEFINED     1120
   7724  DCLLHI       REAL                             REFS       902   DEFINED       890
   3027  DCLLRUD      REAL                  FARRAY     REFS       242      1129   DEFINED     1106
   3301  DCLNAIL      REAL                  FARRAY     REFS       269      1130   DEFINED     1100
   2426  DCLNF        REAL                  FARRAY     REFS        95      1470   DEFINED     1119
   2427  DCLNFJI      REAL                  FARRAY     REFS        95      1470   DEFINED     1121
   7722  DCLNHI       REAL                             REFS       889       903   DEFINED      884      889
   5342  DCLNHIT      REAL       ARRAY      ARDARRY    REFS         9       299       884
   3302  DCLNRUD      REAL                  FARRAY     REFS       269      1130   DEFINED     1107
   2546  DCLPOW       REAL                  FARRAY     REFS       160      1684   DEFINED     1679
   7666  DCMAIL       REAL                             REFS      1126   DEFINED       777
   2562  DCMFJI       REAL                  FARRAY     REFS       160      1258      1259   DEFINED     1255     1282
  44623  DCMFJIT      REAL       ARRAY      ARDARRY    REFS        57       341      1255
   2547  DCMFL        REAL                  FARRAY     REFS       160      1553      1604   DEFINED     1549     1553
   2550  DCMFR        REAL                  FARRAY     REFS       160      1554      1604   DEFINED     1552     1554
   7707  DCMGF        REAL                             REFS       858      1401      1402   DEFINED     1400     1401
   7705  DCMGEAR      REAL                             REFS      1126   DEFINED       854
  10110  DCMJ25L      REAL                             REFS      1260   DEFINED      1258
  10111  DCMJ25R      REAL                             REFS      1261   DEFINED      1259
   7645  DCML         REAL                             REFS       738   DEFINED       735
   7704  DCMLID       REAL                             REFS      1126   DEFINED       853
  10046  DCMPOW       REAL                             REFS      1180    2*1184      1284   DEFINED     1179     1180     1184
   2313  DCMPOWT      REAL       ARRAY      ARDARRY    REFS         9       287      1179
   7643  DCMR         REAL                             REFS       738   DEFINED       732
  10167  DCMST        REAL                             REFS      1604      1635   DEFINED     1540
   2563  DCMSTAB      REAL                  FARRAY     REFS       160       858      1126     1400   DEFINED      822      830
                                                          844       848
   1745  DCMT         REAL       ARRAY      ARDARRY    REFS         9       287       732      735
   2200  DCMUPT       REAL       ARRAY      ARDARRY    REFS         9       287       816      819
   3044  DCM10        REAL                  FARRAY     REFS       253      1379   DEFINED     1374
  10452  DCM10T       REAL       ARRAY      ARDARRY    REFS        26       299      1378
   2254  DCM25T       REAL       ARRAY      ARDARRY    REFS         9       287       825      826
   3043  DCM50        REAL                  FARRAY     REFS       253      1361   DEFINED     1359
  10642  DCM30T       REAL       ARRAY      ARDARRY    REFS        26       299      1358
   3025  DCM60        REAL                  FARRAY     REFS       242      1326   DEFINED     1322
  10736  DCM60T       REAL       ARRAY      ARDARRY    REFS        26       299      1322
   2271  DCM62T       REAL       ARRAY      ARDARRY    REFS         9       287       835      838
   7661  DCNAIL       REAL                             REFS      1125   DEFINED       769
  10026  DCNFJI       REAL                             REFS      1120   DEFINED      1241
   7710  DCNGEAR      REAL                             REFS      1125   DEFINED       859
  10050  DCNJ25       REAL                             REFS      1197      1198   DEFINED     1192
  10055  DCNJ25L      REAL                             REFS    2*1209      1229   DEFINED     1197
  10056  DCNJ25R      REAL                             REFS    2*1210      1229   DEFINED     1198
  10061  DCNJ45       REAL                             REFS      1209      1210   DEFINED     1203
  10065  DCNJ45L      REAL                             REFS    2*1221      1233   DEFINED     1209
  10066  DCNJ45R      REAL                             REFS    2*1222      1233   DEFINED     1210
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VARIABLES       SN  TYPE          RELOCATION
 10C71  DCNJ62     REAL                              REFS      1221      1222    DEFINED     1215
 10C75  DCNJ62L    REAL                              REFS      1225   DEFINED      1221
 10C76  DCNJ62R    REAL                              REFS      1225   DEFINED      1222
  7711  DCNLID     REAL                              REFS      1125   DEFINED       860
 10C41  DCNPDT     REAL                              REFS      1171      1463    DEFINED     1165       1171
 10034  DCNPOW     REAL                              REFS      1243   DEFINED      1147       1173
 11612  DCNPOWT    REAL         ARRAY    ARDARRY     REFS        26       299      1165
 10206  DCNPOW1    REAL                              REFS      1679   DEFINED      1671
 10210  DCNPOW2    REAL                              REFS      1679   DEFINED      1676
  7706  DCNSTAB    REAL                              REFS      1125   DEFINED       858
  3041  DCN50      REAL                  FARRAY      REFS       253      1359    DEFINED     1356
 10072  DCN50T     REAL         ARRAY    ARDARRY     REFS        26       299      1356
  3024  DCN60      REAL                  FARRAY      REFS       242      1324    DEFINED     1321
 10166  DCN60T     REAL         ARRAY    ARDARRY     REFS        26       299      1321
  2646  DCYATL     REAL                  FARRAY      REFS       217      1128    DEFINED     1099
  7721  DCYHF      REAL                              REFS       888       901    DEFINED      883        888
  4342  DCYHIT     REAL         ARRAY    ARDARRY     REFS         9       287       883
  2647  DCYRUD     REAL                  FARRAY      REFS       217      1128    DEFINED     1105
  7553  DE         REAL                              REFS       934       947       988      1060       1308       1425       1441
                                                  DEFINED       569
 10155  DFL        REAL                              REFS      1501      1553      1649      1727    DEFINED       1499       1501
  3144  DFLAPL     REAL                  FARRAY      REFS       253       601       704       716        733        742        750
                                                       785       786      1189      1201      1202       1205       1213       1217
                                                      1245      1262      1263      1267      1499       1545       1548       1640
                                                      1643      1718      1721      1782      1895
  3145  DFLAPR     REAL                  FARRAY      REFS       253       602       704       713        721        728        740
                                                       751     2*786      1189      1201      1202       1206       1213       1218
                                                      1245      1262      1263      1267      1500       1550       1551       1646
                                                      1647      1724      1725      1783
 10156  DFR        REAL                              REFS      1502      1554      1650      1728    DEFINED       1500       1502
 10230  DHICD      REAL                              REFS      1934   DEFINED      1774
  2736  DHID       REAL                  FARRAY      REFS       217       803      1534      1537       1746       1749
 10225  DHTRIM     REAL                              REFS      1753      1754    DEFINED     1752
  3532  DHGFAR     REAL                  FARRAY      REFS       269       854       859       864       1774
  3146  DNLID      REAL                  FARRAY      REFS       253       853       860       865       1774
  7756  DRMB81     REAL                              REFS       978   DEFINED       977
  7757  DRMB81D    REAL                              REFS       986       987    DEFINED      974        986
 21313  DRMB81U    REAL         ARRAY    ARDARRY     REFS        41       312       977
  2634  DRMIGE     REAL                  FARRAY      REFS       205      1425    DEFINED     1424
  2635  DRMPHI     REAL                  FARRAY      REFS       205       988    2*1078      1477    DEFINED        987        988
  7753  DRMP60     REAL                              REFS       987   DEFINED       968
 20403  DRMP60U    REAL         ARRAY    ARDARRY     REFS        41       312       968
  7761  DRMP81     REAL                              REFS       987   DEFINED       985
 21433  DRMP81U    REAL         ARRAY    ARDARRY     REFS        41       312       985
  2750  DRUDD      REAL                  FARRAY      REFS       217      1105      1106      1107       1772       1822       1875
                                                      1925
  7751  DSFT       REAL                              REFS       957   DEFINED       954
 11672  DSFTU      REAL         ARRAY    ARDARRY     REFS        26       312       956
   132  DTOR       REAL                  FARRAY      REFS        66       619       629       634       1461       1464       1582
  2630  DYMBIAS    REAL                  FARRAY      REFS       205      1058    DEFINED     1052
 10154  DYMIGE     REAL                              REFS      1441   DEFINED      1440
  2632  DYMPHI     REAL                  FARRAY      REFS       205      1060    2*1079      1478    DEFINED       1058       1060
                                                      1065
  2627  DYMIP      REAL                  FARRAY      REFS       205      1058    DEFINED     1043
  2454  EPS        REAL                  FARRAY      REFS       109       803       804    DEFINED        794        796        801
  7671  EPS1       REAL                              REFS       794       796    DEFINED      790
  2020  EPSIT      REAL         ARRAY    ARDARRY     REFS         9       287       790
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VARIABLES        SN  TYPE            RELOCATION
  7672  EPS2         REAL                               REFS     24794   DEFINED       793
  2100  EPS2T        REAL        ARRAY    ARDARRY       REFS         9       287       793       801
     0  F            REAL        ARRAY    FARRAY        REFS         6      4066
 10127  FAGE81       REAL                               REFS      1337      1391   DEFINED      1307
  3350  FGTHR        REAL                 FARRAY        REFS       269       583       584       934       947       957       988
                                                        1059      1060      1165      1167      1168      1203      1204      1215
                                                        1216      1264      1269      1306      1307      1308      1425      1434
                                                        1441   DEFINED       583
  3141  FLAP         REAL                 FARRAY        REFS       253       877
 10136  FNGE81       REAL                               REFS      1331      1390   DEFINED      1306
  2640  GKCLLP       REAL                 FARRAY        REFS       217      1871   DEFINED       561
  2641  GKCMP        REAL                 FARRAY        REFS       217      1572      1573   DEFINED      1571      1572
  1762  H            REAL                 FARRAY        REFS        71       634
 30560  HCDAILT      REAL        ARRAY    ARDARRY       REFS        41       325      1738      1741
 31350  HCDDRT       REAL        ARRAY    ARDARRY       REFS        41       325      1743
 43721  HCDFT        REAL        ARRAY    ARDARRY       REFS        57       341      1723      1726
 10246  HCDNF        REAL                               REFS      1828   DEFINED      1826
  2566  HCDSTOW      REAL                 FARRAY        REFS       177      1772   DEFINED      1767
 31045  HCDSTT       REAL        ARRAY    ARDARRY       REFS        41       325      1751      1755
 30246  HCD1T        REAL        ARRAY    ARDARRY       REFS        41       325      1703
 30270  HCD2T        REAL        ARRAY    ARDARRY       REFS        41       325      1690
 30034  HCLAILT      REAL        ARRAY    ARDARRY       REFS        41       325      1658      1661
 41535  HCLBFT       REAL        ARRAY    ARDARRY       REFS        57       341      1844
  2541  HCLBPOW      REAL                 FARRAY        REFS       149      1875   DEFINED       574
 34361  HCLBT        REAL        ARRAY    ARDARRY       REFS        57       325      1840
 10255  HCLDAL       REAL                               REFS      1859   DEFINED      1858
 10253  HCLDAR       REAL                               REFS      1859   DEFINED      1855
 26724  HCLFT        REAL        ARRAY    ARDARRY       REFS        41       325      1645      1648
  2434  HCLL         REAL                 FARRAY        REFS        95      1881   DEFINED      1875
  2526  HCLLB        REAL                 FARRAY        REFS       149      1875   DEFINED      1840
  2445  HCLLBF       REAL                 FARRAY        REFS        95      1845      1846      1875   DEFINED      1844      1847
 10247  HCLLBFL      REAL                               REFS      1847   DEFINED      1845
 10250  HCLLBFR      REAL                               REFS      1847   DEFINED      1844
  2532  HCLLDA       REAL                 FARRAY        REFS       149      1975   DEFINED      1859
 34527  HCLLDAT      REAL        ARRAY    ARDARRY       REFS        57       325      1855      1858
  2535  HCLLDR       REAL                 FARRAY        REFS       149      1975   DEFINED      1864
 35127  HCLLDRT      REAL        ARRAY    ARDARRY       REFS        57       325      1864
 10261  HCLLP        REAL                               REFS      1881   DEFINED      1871
 35245  HCLLPT       REAL        ARRAY    ARDARRY       REFS        57       325      1871
 10260  HCLLR        REAL                               REFS      1881   DEFINED      1870
 35207  HCLLRT       REAL        ARRAY    ARDARRY       REFS        57       325      1870
 26267  HCL1T        REAL        ARRAY    ARDARRY       REFS        41       325      1624
 26313  HCL2T        REAL        ARRAY    ARDARRY       REFS        41       325      1620
 30160  HCMADT       REAL        ARRAY    ARDARRY       REFS        41       325      1581
 23501  HCMB1T       REAL        ARRAY    ARDARRY       REFS        41       325      1521
 23530  HCMB2T       REAL        ARRAY    ARDARRY       REFS        41       325      1517
  2553  HCMDA        REAL                 FARRAY        REFS       160      1604   DEFINED      1594
 10201  HCMDAL       REAL                               REFS      1594   DEFINED      1593
 10200  HCMDAR       REAL                               REFS      1594   DEFINED      1590
 30166  HCMDAT       REAL        ARRAY    ARDARRY       REFS        41       325      1590      1593
 25137  HCMFT        REAL        ARRAY    ARDARRY       REFS        41       325      1549      1552
  2545  HCMPOW       REAL                 FARRAY        REFS       160      1573      1604   DEFINED      1569      1573
 31410  HCMPOWT      REAL        ARRAY    ARDARRY       REFS        41       325      1563      1568
 10172  HCMP1        REAL                               REFS      1569   DEFINED      1563
 10174  HCMP2        REAL                               REFS      1569   DEFINED      1568
 33450  HCMQT        REAL        ARRAY    ARDARRY       REFS        41       325      1578
 23737  HCMSTT       REAL        ARRAY    ARDARRY       REFS        41       325      1540
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VARIABLES        SN  TYPE           RELOCATION
 42665  HCNAHT       REAL     ARRAY    ARDARRY       REFS         57       341      1793
 33627  HCNDAT       REAL     ARRAY    ARDARRY       REFS         41       325      1801      1904
 34227  HCNDRT       REAL     ARRAY    ARDARRY       REFS         41       325      1810
 34337  HCNAT        REAL     ARRAY    ARDARRY       REFS         57       325      1818
 34307  HCNRT        REAL     ARRAY    ARDARRY       REFS         57       325      1816
  2432  HCY          REAL              FARRAY        REFS         95      1929   DEFINED      1925
  2527  HCYB         REAL              FARRAY        REFS        149      1900      1925   DEFINED      1896      1900
 10263  HCYBE        REAL                            REFS       1899      1900   DEFINED      1898      1899
 35303  HCYBT        REAL     ARRAY    ARDAPRY       REFS         57       325      1896      1898
  2533  HCYDA        REAL              FARRAY        REFS        149      1925   DEFINED      1911
 10264  HCYDAL       REAL                            REFS       1911   DEFINED      1907
 10265  HCYDAR       REAL                            REFS       1911   DEFINED      1910
 35603  HCYDAT       REAL     ARRAY    ARDARRY       REFS         57       325      1907      1910
  2536  HCYDR        REAL              FARRAY        REFS        149      1925   DEFINED      1916
 35663  HCYDRT       REAL     ARRAY    ARDARRY       REFS         57       325      1914
  2433  HCYR         REAL              FARRAY        REFS         95      1929   DEFINED      1921
 35743  HCYRT        REAL     ARRAY    ARDARRY       REFS         57       341      1921
 10262  HDCLLF       REAL                            REFS       1881   DEFINED      1880
  2573  HICD         REAL              FARRAY        REFS        177      1934   DEFINED      1772
  2572  HICL         REAL              FARRAY        REFS        177      1933   DEFINED      1684
  2571  HICM         REAL              FARRAY        REFS        177      1935   DEFINED      1604
 10271  HIFD         REAL                            REFS       1936      1937   DEFINED      1934
 10270  HIFL         REAL                            REFS       1936      1937   DEFINED      1933
  2577  HIFX         REAL              FARRAY        REFS        177      1940      1942      1950      1959
                                                  DEFINED       1936
  2600  HIFZ         REAL              FARRAY        REFS        177      1940      1941      1952      1959
                                                  DEFINED       1937
 10272  HIPM         REAL                            REFS       1940      1953      1960   DEFINED      1935      1940
  2601  HIRM         REAL              FARRAY        REFS        177      1941      1955      1961   DEFINED      1938      1941
  2576  HISF         REAL              FARRAY        REFS        177      1941      1942      1951      1963
                                                  DEFINED       1929
  2602  HIYM         REAL              FARRAY        REFS        177      1942      1954      1962   DEFINED      1939      1942
  2610  HP           REAL              FARRAY        REFS        193       664     2*666     2*667     2*669     2*670       672
                                                     964        967       970       973       986       990       993       996
                                                    1028       1033      1037      1042      1294      1297      1311      1313
                                                    1353       1373      1394      1406      1408      1411      1427      1429
                                                    1436    DEFINED       634
  2575  HROL         REAL              FARRAY        REFS        177      1938      1939   DEFINED      1881
  2574  HYAW         REAL              FARRAY        REFS        177      1828      1938      1939   DEFINED      1927      1828
 10166  IH1        * INTEGER                         REFS       1536
 10205  IH12       * INTEGER                         REFS       1655
 10207  IH13       * INTEGER                         REFS       1673
 10212  IH14       * INTEGER                         REFS       1695
 10213  IH15       * INTEGER                         REFS       1696
 10215  IH16       * INTEGER                         REFS       1702
 10220  IH18       * INTEGER                         REFS       1732
 10221  IH19       * INTEGER                         REFS       1733
 10161  IH2        * INTEGER                         REFS       1520
 10223  IH20       * INTEGER                         REFS       1747
 10222  IH22       * INTEGER                         REFS       1739
 10227  IH23       * INTEGER                         REFS       1761
 10171  IH24       * INTEGER                         REFS       1560
 10157  IH25         INTEGER                         REFS       1514      1617
 10234  IH26       * INTEGER                         REFS       1797
 10235  IH27       * INTEGER                         REFS       1799
 10237  IH28       * INTEGER                         REFS       1802
 10241  IH29       * INTEGER                         REFS       1809
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VARIABLES         SN  TYPE             RELOCATION
10165  IH3        *   INTEGER                         REFS        1534
10242  IH30       *   INTEGER                         REFS        1814
10175  IH31       *   INTEGER                         REFS        1577
10233  IH32           INTEGER                         REFS        1789     1838     1892
10251  IH33       *   INTEGER                         REFS        1851
10252  IH34       *   INTEGER                         REFS        1853
10254  IH35       *   INTEGER                         REFS        1856
10256  IH36       *   INTEGER                         REFS        1863
10257  IH37       *   INTEGER                         REFS        1868
10266  IH40       *   INTEGER                         REFS        1915
10267  IH41       *   INTEGER                         REFS        1920
10173  IH42       *   INTEGER                         REFS        1565
10243  IH43       *   INTEGER                         REFS        1815
10217  IH44       *   INTEGER                         REFS        1719
10170  IH5            INTEGER                         REFS        1546     1641
10203  IH8        *   INTEGER                         REFS        1623
  233  INITIAL        INTEGER          FARRAY         REFS          66      560
 7630  IPREV1     *   INTEGER                         REFS         708
10125  IPREV10    *   INTEGER                         REFS        1304
 7730  IPREV11    *   INTEGER                         REFS         917
 7733  IPREV12    *   INTEGER                         REFS         924
 7734  IPREV13    *   INTEGER                         REFS         925
 7742  IPREV14    *   INTEGER                         REFS         939
 7745  IPREV15    *   INTEGER                         REFS         944
 7747  IPREV16    *   INTEGER                         REFS         952
 7750  IPREV17    *   INTEGER                         REFS         953
10140  IPREV18    *   INTEGER                         REFS        1408
10142  IPREV19    *   INTEGER                         REFS        1416
10033  IPREV2         INTEGER                         REFS        1145     1466
10143  IPREV20    *   INTEGER                         REFS        1417
10145  IPREV21    *   INTEGER                         REFS        1427
10146  IPREV22    *   INTEGER                         REFS        1431
10150  IPREV23    *   INTEGER                         REFS        1436
 7752  IPREV24    *   INTEGER                         REFS         964
 7754  IPREV25    *   INTEGER                         REFS         970
 7762  IPREV26    *   INTEGER                         REFS         993
10001  IPREV27    *   INTEGER                         REFS        1028
10003  IPREV28    *   INTEGER                         REFS        1033
10005  IPREV29    *   INTEGER                         REFS        1035
10007  IPREV30    *   INTEGER                         REFS        1037
10012  IPREV31    *   INTEGER                         REFS        1042
10015  IPREV32    *   INTEGER                         REFS        1048
 7720  IPREV33    *   INTEGER                         REFS         879
 7642  IPREV4     *   INTEGER                         REFS         731
 7644  IPREV5     *   INTEGER                         REFS         734
10152  IPREV50    *   INTEGER                         REFS        1438
10103  IPREV6     *   INTEGER                         REFS        1249
10035  IPREV7     *   INTEGER                         REFS        1153
10121  IPREV8     *   INTEGER                         REFS        1299
10123  IPREV9     *   INTEGER                         REFS        1302
10277  NPT1           INTEGER  ARRAY                  REFS         355      707      708      709   DEFINED      404
10325  NPT10          INTEGER  ARRAY                  REFS         355      911      835      837       838
                                                   DEFINED         404
10327  NPT11          INTEGER  ARRAY                  REFS         355      816      818      819   DEFINED      404
10332  NPT12          INTEGER  ARRAY                  REFS         355      840      841  DEFINED       404
10334  NPT13          INTEGER  ARRAY                  REFS         355      771      772      774       775      776
                                                   DEFINED         404
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      SUBROUTINE AERDYAB    74/175  OPT=2                          FTN 4.8+538        82/10/22. 15.12.40        PAGE     48

VARIABLES      SN   TYPE            RELOCATION
10336  NPT14        INTEGER    ARRAY                 REFS       355        1179   DEFINED       404
10341  NPT15        INTEGER    ARRAY                 REFS       355        1249      1250      1251      1252
                                                  DEFINED       404
10344  NPT16        INTEGER    ARRAY                 REFS       355         790   DEFINED       404
10346  NPT17        INTEGER    ARRAY                 REFS       355        1152      1153      1154      1155
                                                  DEFINED       404
10351  NPT18        INTEGER    ARRAY                 REFS       355        1156      1157   DEFINED       404
10353  NPT19        INTEGER    ARRAY                 REFS       355         878       883       884   DEFINED       411
10301  NPT2         INTEGER    ARRAY                 REFS       355         715       717   DEFINED       404
10355  NPT20        INTEGER    ARRAY                 REFS       355         894       895       895   DEFINED       411
10357  NPT21        INTEGER    ARRAY                 REFS       360        1091      1092      1093      1096      1097      1098
                                                  DEFINED       411
10361  NPT22        INTEGER    ARRAY                 REFS       360        1298      1299      1300   DEFINED       411
10363  NPT23        INTEGER    ARRAY                 REFS       360        1304      1305   DEFINED       411
10365  NPT24        INTEGER    ARRAY                 REFS       360        1315      1316      1317      1321      1322      1323
                                                     1356      1357        1358   DEFINED       411
10370  NPT25        INTEGER    ARRAY                 REFS       360         880       881   DEFINED       411
10372  NPT26        INTEGER    ARRAY                 REFS       360         918       919   DEFINED       411
10374  NPT27        INTEGER    ARRAY                 REFS       360         926       929      1420      1421      1422
                                                  DEFINED       411
10377  NPT28        INTEGER    ARRAY                 REFS       360         931   DEFINED       411
10401  NPT29        INTEGER    ARRAY                 REFS       360         942       943      1430      1437
                                                  DEFINED       411
10304  NPT3         INTEGER    ARRAY                 REFS       355         765       767       768   DEFINED       404
10403  NPT30        INTEGER    ARRAY                 REFS       360         945   DEFINED       411
10405  NPT31        INTEGER    ARRAY                 REFS       360         956   DEFINED       411
10410  NPT32        INTEGER    ARRAY                 REFS       360         968   DEFINED       411
10413  NPT33        INTEGER    ARRAY                 REFS       360         975   DEFINED       411
10416  NPT34        INTEGER    ARRAY                 REFS       360         977   DEFINED       411
10421  NPT35        INTEGER    ARRAY                 REFS       360         985   DEFINED       411
10424  NPT36        INTEGER    ARRAY                 REFS       360         998      1001      1017      1018      1034      1045
                                                     1046   DEFINED         411
10427  NPT37        INTEGER    ARRAY                 REFS       360        1005      1008   DEFINED       411
10432  NPT38        INTEGER    ARRAY                 REFS       360        1021      1022   DEFINED       411
10435  NPT39        INTEGER    ARRAY                 REFS       360        1031   DEFINED       411
10306  NPT4         INTEGER    ARRAY                 REFS       355        1144      1145      1146      1147      1163      1164
                                                     1165      1665        1666      1667      1671      1672      1673      1676
                                                  DEFINED       404
10440  NPT40        INTEGER    ARRAY                 REFS       360        1036   DEFINED       411
10443  NPT41        INTEGER    ARRAY                 REFS       360        1039   DEFINED       411
10446  NPT42        INTEGER    ARRAY                 REFS       360        1049      1050   DEFINED       411
10451  NPT43        INTEGER    ARRAY                 REFS       360        1301      1302      1303   DEFINED       411
10453  NPT44        INTEGER    ARRAY                 REFS       360        1378   DEFINED       411
10456  NPT45        INTEGER    ARRAY                 REFS       360        1413   DEFINED       411
10461  NPT46        INTEGER    ARRAY                 REFS       360        1432      1439   DEFINED       411
10464  NPT47        INTEGER    ARRAY                 REFS       360        1517      1620   DEFINED       411
10466  NPT48        INTEGER    ARRAY                 REFS       360        1540   DEFINED       411
10471  NPT49        INTEGER    ARRAY                 REFS       360        1549      1552      1645      1648
                                                  DEFINED       422
10311  NPT5         INTEGER    ARRAY                 REFS       355        1192   DEFINED       404
10474  NPT50        INTEGER    ARRAY                 REFS       360        1563      1568   DEFINED       422
10477  NPT51        INTEGER    ARRAY                 REFS       360        1590      1593      1810      1864      1916
                                                  DEFINED       422
10501  NPT52        INTEGER    ARRAY                 REFS       360        1658      1661   DEFINED       422
10503  NPT53        INTEGER    ARRAY                 REFS       360        1699   DEFINED       422
10505  NPT54        INTEGER    ARRAY                 REFS       360        1723      1726   DEFINED       422
10510  NPT55        INTEGER    ARRAY                 REFS       360        1738      1741   DEFINED       422
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VARIABLES     SN   TYPE                 RELOCATION
 10513  NPT56      INTEGER    ARRAY                     REFS      360      1751      1755     DEFINED     422
 10516  NPT57      INTEGER    ARRAY                     REFS      360      1763    DEFINED      422
 10520  NPT58      INTEGER    ARRAY                     REFS      360      1793      1840      1844       1896      1898
                                                     DEFINED      422
 10523  NPT59      INTEGER    ARRAY                     REFS      360      1801      1804      1855       1859
                                                     DEFINED      422
 10313  NPT6       INTEGER    ARRAY                     REFS      355       720       722     DEFINED     404
 10526  NPT60      INTEGER    ARRAY                     REFS      360      1816    DEFINED      422
 10530  NPT61      INTEGER    ARRAY                     REFS      360      1818    DEFINED      422
 10532  NPT62      INTEGER    ARRAY                     REFS      360      1870      1871     DEFINED     422
 10534  NPT63      INTEGER    ARRAY                     REFS      360      1907      1910     DEFINED     422
 10315  NPT7       INTEGER    ARRAY                     REFS      355       729       730       731        732       734       735
                                                     DEFINED      404
 10320  NPT8       INTEGER    ARRAY                     REFS      355       741       743     DEFINED     404
 10322  NPT9       INTEGER    ARRAY                     REFS      355       793       801     DEFINED     404
  2172  P          REAL                  FARRAY         REFS       86       581       582      2*594      1468      1470
  7771  PBSF60     REAL                                 REFS     1023    DEFINED     1017
 16241  PBSF60U    REAL       ARRAY      ARDARRY        REFS       26       312      1017
  7773  PBSF81     REAL                                 REFS     1023    DEFINED     1021
 16401  PBSF81U    REAL       ARRAY      ARDARRY        REFS       26       312      1021
  7772  PBYM60     REAL                                 REFS     1024    DEFINED     1018
 21733  PBYM60U    REAL       ARRAY      ARDARRY        REFS       41       312      1018
  7774  PBYM81     REAL                                 REFS     1024    DEFINED     1022
 22073  PBYM81U    REAL       ARRAY      ARDARRY        REFS       41       312      1022
  2117  PHI        REAL                  FARRAY         REFS       71       682
  7623  PHIP       REAL                                 REFS      961       979      1025      1026       1053      1056
                                                     DEFINED      682
 10130  PMGE81     REAL                                 REFS     1333      1392    DEFINED     1308
  2417  PSTAB      REAL                  FARRAY         REFS       95      1827      1881    DEFINED      581
  2173  Q          REAL                  FARRAY         REFS       86     2*592      1461      1464       1579
  2016  QBAR       REAL                  FARRAY         REFS       71       584       596      1635
  7564  QS         REAL                                 REFS      597       598      1075      1166       1203      1204      1215
                                                         1216      1324      1325      1341      1342       1359      1360      1459
                                                         1461      1467      1468      1470      1487       1488      1826      1880
                                                         1929      1933      1934    DEFINED      596
  7566  QSB        REAL                                 REFS     1073      1074      1468      1470       1827      1881
                                                     DEFINED      598
  7565  QSC        REAL                                 REFS      858      1264      1269      1326       1343      1361      1379
                                                         1401      1464      1935    DEFINED      597
  2174  R          REAL                  FARRAY         REFS       86       581       582      2*595      1468      1470
 10045  RAT        REAL                                 REFS     1170      1171    DEFINED     1169       1170
 10273  RATIO      REAL                                 REFS     1949      1950      1951      1952       1953      1954      1955
                                                     DEFINED     1948      1949
  7603  RBP140     REAL                                 REFS      642       927    DEFINED      641        642
  7610  RBP24      REAL                                 REFS      653       932    DEFINED      652        653
  7625  RBP30      REAL                                 REFS      685       987      1024      1052     DEFINED      684       685
  7606  RBP45      REAL                                 REFS      649       932    DEFINED      649        649
  7621  RBP90      REAL                                 REFS      677      1424    DEFINED      676        677
  7702  RC         REAL                                 REFS      842       943    DEFINED      841
  7653  RCA        REAL                                 REFS      747       748       749     DEFINED     746
  3757  RCAT       REAL       ARRAY      ARDARRY        REFS        9       287       746
  2162  RCT        REAL       ARRAY      ARDARRY        REFS        9       287       841
 10107  RC4        REAL                                 REFS     1257      1260      1261     DEFINED    1256       1257
  2637  RC5        REAL                  FARRAY         REFS      205      1258      1259     DEFINED     575
  2500  RDRAG      REAL                  FARRAY         REFS      128    DEFINED     1488
  2231  RHO        REAL                  FARRAY         REFS       86       585       592       593        594       595
  7614  RHP120     REAL                                 REFS      665      1423    DEFINED     664        665
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VARIABLES    SN  TYPE            RELOCATION
  7615  RHP412    REAL                                  REFS       668      1423   DEFINED      666      667      668
  7617  RHP7P70   REAL                                  REFS       673      1011     1055      1058     1433     1440
                                                     DEFINED       672       673
  7616  RHP705    REAL                                  REFS       671      1423   DEFINED      669      670      671
  7673  RK        REAL                                  REFS       820       821   DEFINED      811
 10052  RKON1     REAL                                  REFS      1197      1198     1199      1200   DEFINED    1194
 10053  RKON2     REAL                                  REFS      1197      1199   DEFINED     1195
 10054  RKON3     REAL                                  REFS      1198      1200   DEFINED     1196
  7654  RKPRIME   REAL                                  REFS       750       751   DEFINED      747      748      749
  2140  RKT       REAL       ARRAY     ARDARRY          REFS         9       287      811
  3045  RKO       REAL                 FARRAY           REFS       253      1399     1400   DEFINED     1396     1399
 11602  RKOT      REAL       ARRAY     ARDARRY          REFS        26       299     1396
  7567  RK1       REAL                                  REFS       600      1120     1121      1194   DEFINED     599      600
  2763  RK10      REAL                 FARRAY           REFS       234       588      592       594      595
                                                     DEFINED       587       588
  7560  RK11      REAL                                  REFS       591      1461     1464   DEFINED      590      591
  7570  RK2       REAL                                  REFS       603      1120     1121      1195     1253     1258
                                                     DEFINED       601       603
  7571  RK3       REAL                                  REFS       604      1120     1121      1196     1254     1259
                                                     DEFINED       602       604
 10137  RK30      REAL                                  REFS      1395      1400   DEFINED     1394     1395
  2506  RK4       REAL                 FARRAY           REFS       128       592   DEFINED      562
  7723  RK5       REAL                                  REFS       888       889   DEFINED      885      886      887
  2636  RK6       REAL                 FARRAY           REFS       205      1099   DEFINED      563
  2751  RK7       REAL                 FARRAY           REFS       234       594   DEFINED      564
  2477  RLIFT     REAL                 FARRAY           REFS       128   DEFINED     1487
  2017  RMACH     REAL                 FARRAY           REFS        71       605     1489      1514     1516     1536     1539
                                                          1546      1577      1578     1580      1581   2*1599     1617     1619
                                                          1641      1644      1655     1657      1695     1697     1719     1722
                                                          1733      1736      1747     1750      1761     1762     1789     1791
                                                          1797      1809      1814     1838      1851     1863     1868     1892
                                                          1915      1920      1921     1944      1949
 14204  RMATB1U   REAL       ARRAY     ARDARRY          REFS        26       312     1420
  7731  RMBE00    REAL                                  REFS       933   DEFINED      918
 12233  RMBE00U   REAL       ARRAY     ARDARRY          REFS        26       312      918
  7732  RMBE60    REAL                                  REFS       933   DEFINED      919
 12327  RMBE60U   REAL       ARRAY     ARDARRY          REFS        26       312      919
  7736  RMBE77    REAL                                  REFS       932   DEFINED      927
  7735  RMBE81    REAL                                  REFS       927   DEFINED      926
  7741  RMBE81A   REAL                                  REFS       933   DEFINED      932
 12423  RMBE81U   REAL       ARRAY     ARDARRY          REFS        26       312      926
  7737  RMBE96    REAL                                  REFS       932   DEFINED      929
 12745  RMBE96U   REAL       ARRAY     ARDARRY          REFS        26       312      929
  3046  RMGE00    REAL                 FARRAY           REFS       253      1414   DEFINED     1413
 14014  RMGE00U   REAL       ARRAY     ARDARRY          REFS        26       312     1413
 10141  RMGE60    REAL                                  REFS      1424   DEFINED     1414
 10144  RMGE81    REAL                                  REFS      1424   DEFINED     1423
  2617  RMIGE     REAL                 FARRAY           REFS       198      1473   DEFINED     1425     1444
  3262  RMOGE     REAL                 FARRAY           REFS       269       934   2*1078     1477  DEFINED      933      934
  7755  RMPAB1    REAL                                  REFS       979   DEFINED      975
 21123  RMPAB1U   REAL       ARRAY     ARDARRY          REFS        41       312      975
 10231  RMULTL    REAL                                  REFS      1784      1845     1899   DEFINED     1782     1784
 10232  RMULTR    REAL                                  REFS      1785      1846     1899   DEFINED     1783     1785
  3047  RM1P2     REAL                 FARRAY           REFS       253      1423   DEFINED     1422
  7740  RM2P47    REAL                                  REFS       932   DEFINED      931
 13053  RM2P47U   REAL       ARRAY     ARDARRY          REFS        26       312      931
  3050  RM4P12    REAL                 FARRAY           REFS       253      1423   DEFINED     1421
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VARIABLES      SN   TYPE              RELOCATION
 14526  RM4P12U    REAL        ARRAY     ARDARRY     REFS        26       312      1421
  3C51  RM7P05     REAL                  FARRAY      REFS       253      1423   DEFINED      1422
 15050  RM7P05U    REAL        ARRAY     ARDARRY     REFS        26       312      1422
  2436  RSTAR      REAL                  FARRAY      REFS        95      1827      1881      1929   DEFINED       582
  2606  RTHALP     REAL                  FARRAY      REFS       193       612     2*613   DEFINED       611       512
  7611  RTJ00      REAL                              REFS       653       683       933       946   DEFINED       654       655
  7624  RTJ06      REAL                              REFS       987      1011      1023      1024      1039      1040      1051
                                                             1052   DEFINED       683
  7612  RTJ60      REAL                              REFS       658       683       933       946      1424      1433      1440
                                                          DEFINED       656       657       658
  7613  RTJ81      REAL                              REFS       660       933       946       987      1011      1023      1024
                                                             1039      1040      1051      1052      1424      1433      1440
                                                          DEFINED       659       660
   133  RTOD       REAL                  FARRAY      REFS        66       624      1579      1827      1881      1929
  7602  RVE0025    REAL                              REFS       644       927       946       956       978      1023      1024
                                                             1051      1052      1414      1424      1433      1440
                                                          DEFINED       639       640
  7607  RVE247     REAL                              REFS       651       932   DEFINED       650       651
  7620  RVE577     REAL                              REFS       675      1423   DEFINED       674       675
  7604  RVE77      REAL                              REFS       644       681       922   DEFINED       643       644
  7622  RVE7796    REAL                              REFS       978       979       985      1055   DEFINED       681
  7605  RVE96      REAL                              REFS       647       681       932   DEFINED       645       646       647
  2463  S          REAL                  FARRAY      REFS       115       585       593       596   DEFINED       567
  7577  SBETAP     REAL                              REFS       933       961       979       987      1025      1036      1053
                                                             1055      1056      1058      1424   DEFINED       629
  2622  SCALR      REAL                  FARRAY      REFS       198      1579   DEFINED       573
  3075  SFGE60     REAL                  FARRAY      REFS       253      1433   DEFINED      1430
 13453  SFGE60U    REAL        ARRAY     ARDARRY     REFS        26       312      1430
  3C76  SFGE81     REAL                  FARRAY      REFS       253      1433   DEFINED      1432
 13530  SFGE81U    REAL        ARRAY     ARDARRY     REFS        26       312      1432
  2621  SFIGE      REAL                  FARRAY      REFS       198      1472   DEFINED      1434      1445
  2650  SFOGE      REAL                  FARRAY      REFS       217    2*1080      1476   DEFINED       957
 10C13  SFTB60     REAL                              REFS      1051   DEFINED      1045
 17677  SFTB60U    REAL        ARRAY     ARDARRY     REFS        41       312      1045
 10C16  SFTB81     REAL                              REFS      1051   DEFINED      1049
 20C37  SFTB81U    REAL        ARRAY     ARDARRY     REFS        41       312      1049
 10002  SFTP60     REAL                              REFS      1039   DEFINED      1031
 16563  SFTP60U    REAL        ARRAY     ARDARRY     REFS        41       312      1031
 1C010  SFTP81     REAL                              REFS      1039   DEFINED      1038
 17033  SFTP81U    REAL        ARRAY     ARDARRY     REFS        41       312      1038
  2136  SINALP     REAL                  FARRAY      REFS        71       581       582       859       860      1457      1458
                                                             1936      1937      1938      1939
  7600  SINRP      REAL                              REFS       986   DEFINED       629
  7760  STERM      REAL                              REFS       987      1055      1059   DEFINED       980      1054      1057
 1C274  TEMP       REAL        ARRAY                 REFS       352       707       709       709       715       717       720
                                                              722       729       730       731       732       734       735       741
                                                              749       765       767       769       771       772       776       775
                                                              776       790       793       801       811       816       818       819
                                                              835       837       838       840       841       879       879       880
                                                              881       883       884       894       895       896       916       917
                                                              918       919       923       924       925       926       929       929
                                                              930       931       942       943       945       955       968       975
                                                              977       985       998      1001      1035      1008      1017      1018
                                                             1021      1022      1031      1034      1036      1038      1045      1046
                                                             1049      1050      1091      1092      1093      1096      1097      1098
                                                             1144      1145      1146      1147      1152      1153      1154      1155
                                                             1156      1157      1163      1164      1165      1179      1192      1249
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 VARIABLES      SN   TYPE            RELOCATION
                                                  1250     1251     1252     1299     1299     1300     1301     1302
                                                  1303     1304     1305     1315     1316     1317     1319     1320
                                                  1321     1322     1323     1354     1355     1356     1357     1358
                                                  1375     1376     1377     1378     1413     1420     1421     1422
                                                  1430     1432     1437     1439     1517     1540     1549     1552
                                                  1563     1568     1590     1593     1620     1645     1648     1658
                                                  1661     1671     1676     1699     1723     1726     1739     1741
                                                  1751     1755     1763     1793     1801     1804     1810     1816
                                                  1818     1840     1844     1855     1859     1864     1870     1871
                                                  1896     1898     1907     1910     1916  DEFINED     705      706
                                                   712      713      715      716      721      726      727      728
                                                   733      740      742      763      764      766      773      788
                                                   789      792      798      799      800      809      810      812
                                                   813      814      815      817      833      834      836      839
                                                   876      877      892      893      914      915      920      921
                                                   922      940      941      954      955      965      966      967
                                                   972      973      974      984      995      996      997     1000
                                                  1007     1015     1016     1030     1044     1089     1090     1095
                                                  1140     1141     1142     1143     1150     1151     1161     1162
                                                  1176     1177     1178     1190     1191     1246     1247     1248
                                                  1296     1297     1312     1313     1314     1352     1353     1372
                                                  1373     1374     1410     1411     1412     1418     1419     1428
                                                  1429     1515     1516     1537     1539     1539     1547     1548
                                                  1551     1561     1562     1566     1567     1588     1589     1592
                                                  1618     1619     1642     1643     1644     1647     1656     1657
                                                  1660     1668     1669     1670     1674     1675     1697     1698
                                                  1720     1721     1722     1725     1735     1736     1737     1740
                                                  1748     1749     1750     1754     1762     1791     1792     1800
                                                  1803     1894     1857     1895     1906     1909
  7555   TEMPX1       REAL                        REFS      586     1461  DEFINED      585
  7556   TEMPX2       REAL                        REFS   2*1464  DEFINED      586
  2764   TEMPX3       REAL           FARRAY       REFS      234     1464  DEFINED      592
  7561   TEMPX4       REAL                        REFS   2*1468   2*1470     1827     1881     1929
                                               DEFINED      593
  7562   TEMPX5       REAL                        REFS     1468  DEFINED      594
  7563   TEMPX6       REAL                        REFS     1470  DEFINED      595
 10043   TEMP1        REAL                        REFS   2*1171  DEFINED     1167
 10044   TEMP2        REAL                        REFS   2*1172  DEFINED     1168
  7717   TEMP3        REAL                        REFS      875      897      898      899  DEFINED      874      875
  2633   TERM         REAL           FARRAY       REFS      205      962      965      940      981      982      984
                                                  1054     1057     1077     1078     1079     1080     1330     1331
                                                  1332     1333     1346     1347     1348     1349     1364     1365
                                                  1366     1367     1371     1380     1382     1398     1399
                                               DEFINED      961      979      981     1053     1056     1076     1077
                                                  1329     1330     1345     1346     1363     1364     1370     1371
                                                  1397     1398
 10063   TERM1        REAL                        REFS     1207     1209     1211     1265  DEFINED     1205     1207
 10064   TERM2        REAL                        REFS     1208     1210     1212     1266  DEFINED     1206     1208
 10073   TERM3        REAL                        REFS     1219     1221     1223     1270  DEFINED     1217     1219
 10074   TERM4        REAL                        REFS     1220     1222     1224     1271  DEFINED     1218     1220
  2116   THA          REAL           FARRAY       REFS       71      613      614
  2616   THALP        REAL           FARRAY       REFS      198      618      619      634      914      921      938
                                                   940      951     1296     1312     1352     1372     1396     1407
                                                  1410     1416     1419     1426     1428     1435
                                               DEFINED      613      614      615      618
  3373   THETAJ       REAL           FARRAY       REFS      269      599      654    2*656    2*657      659      705
                                                   714      724      810      813      952      954     1140     1148
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VARIABLES      SN  TYPE            RELOCATION
                                                  1151     1159     1161     1178     1203     1204     1215     1216
                                                  1248     1256     1264     1269     1295     1309     1311     1318
                                                  1327     1329     1344     1345     1362     1363     1370     1397
                                                  1560     1562     1571     1665     1668
  2131  U          REAL                 FARRAY    REFS       71      589      672
  7557  UKTS       REAL                           REFS      587      590      873      903     1067     1076     1475
                                                2*1480  DEFINED      589
  7575  UP         REAL                           REFS      623      625      626  DEFINED      622
  2132  V          REAL                 FARRAY    REFS       71      621      625      626
  2603  VEQ        REAL                 FARRAY    REFS      193      611      614      615      616      617      645
                                                   646      706      727      736      745      746      789      799
                                                   809      812      834      874      892      897      898      899
                                                   915      922      939      941      944      953      955      991
                                                  1141     1152     1160     1169     1172     1177   2*1180     1181
                                                  1192     1191     1193     1246     1295     1314     1328     1460
                                                  1463     1559     1561     1666     1669  DEFINED      584
  7572  VET        REAL                           REFS      639      643      645      646      650      674      971
                                                   974      976      983      992      995     1004     1014     1016
                                                  1020     1029     1035     1043     1048     1374     1409     1412
                                                  1417     1431     1438  DEFINED      616      617
  7574  VP         REAL                           REFS      623  DEFINED      621
  2005  VT         REAL                 FARRAY    REFS       71      580      585      593
  7641  XTENP      REAL                           REFS      725      738     1149     1158  DEFINED      724      725
                                                  1148     1149
  7646  XTEMP1     REAL                           REFS      737      738  DEFINED      736      737
  2625  YDSFTB     REAL                 FARRAY    REFS      205     1055  DEFINED     1051
  2626  YDSFTP     REAL                 FARRAY    REFS      205     1059   2*1080     1476  DEFINED     1055     1059
                                                  1064
 10011  YDSFTIP    REAL                           REFS     1055  DEFINED     1039
  2631  YK         REAL                 FARRAY    REFS      205     1012     1055     1058  DEFINED     1011
  7770  YK60       REAL                           REFS     1010     1011  DEFINED     1009     1010
  7765  YK81       REAL                           REFS     1003     1011  DEFINED     1002     1003
 10014  YMBS60     REAL                           REFS     1052  DEFINED     1046
 22775  YMBS60U    REAL       ARRAY     ARDARRY   REFS       41      312     1446
 10017  YMBS81     REAL                           REFS     1052  DEFINED     1050
 23135  YMBS81U    REAL       ARRAY     ARDARRY   REFS       41      312     1050
 10151  YMGF60     REAL                           REFS     1440  DEFINED     1437
 15372  YMGF60U    REAL       ARRAY     ARDARRY   REFS       26      312     1437
 10153  YMGE81     REAL                           REFS     1440  DEFINED     1439
 15447  YMGE81U    REAL       ARRAY     ARDARRY   REFS       26      312     1439
  2620  YMIGE      REAL                 FARRAY    REFS      198     1474  DEFINED     1441     1444
  2430  YMOGE      REAL                 FARRAY    REFS       95      947   2*1079     1479  DEFINED      946      947
  7776  YMPBIAS    REAL                           REFS     1026     1056  DEFINED     1024
 10004  YMPE60     REAL                           REFS     1040  DEFINED     1034
 22255  YMPE60U    REAL       ARRAY     ARDARRY   REFS       41      312     1034
 10006  YMPE81     REAL                           REFS     1040  DEFINED     1036
 22415  YMPE81U    REAL       ARRAY     ARDARRY   REFS       41      312     1036
 10000  YMPHIE     REAL                           REFS     1032  DEFINED     1026
 16073  YMSF60U    REAL       ARRAY     ARDARRY   REFS       26      312     1005     1009
 15733  YMSF81U    REAL       ARRAY     ARDARRY   REFS       26      312      998     1001
  7743  YMTB00     REAL                           REFS      946  DEFINED      942
 13206  YMTB00U    REAL       ARRAY     ARDAPRY   REFS       26      312      942
  7744  YMTB60     REAL                           REFS      946  DEFINED      943
 13263  YMTB60U    REAL       ARRAY     ARDARRY   REFS       26      312      943
  7746  YMTB81     REAL                           REFS      946  DEFINED      945
 13340  YMTB81U    REAL       ARRAY     ARDARRY   REFS       26      312      945
  7775  YPHIB      REAL                           REFS     1025     1053  DEFINED     1023
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      SUBROUTINE AERDY8B    74/175  OPT=2                    FTN 4.8+538      82/10/22. 15.12.40      PAGE    54

VARIABLES     SN   TYPE           RELOCATION
 7777  YPHIE       REAL                          REFS     1027      1030   DEFINED   1025
10147  YSFTB       REAL                          REFS     1434   DEFINED      1433
 7670  YTEMP       REAL                          REFS      787       791       794    800     809     822     823
                                                  824      827       830       844    845     848
                                              DEFINED      785       786
10C47  ZTEMP       REAL                          REFS     1183      1184   DEFINED   1182    1183

EXTERNALS          TYPE    ARGS        REFERENCES
       ATAN2       REAL      2 LIBRARY    623
       COS         REAL      1 LIBRARY    619      634
       FCALC                 4            737      729       730       767    774     818     837     840     916
                                          923      928       930       938    951     962     963     969     971
                                          976      982       983       992    994     999    1004    1006    1013
                                         1014     1019      1020      1027   1029    1032    1041    1043    1047
                                         1144     1146      1152      1154   1156    1163    1164    1250    1251
                                         1294     1301      1319      1320   1354    1355    1375    1376    1377
                                         1407     1409      1415      1426   1435    1513    1535    1544    1545
                                         1550     1558      1559      1564   1580    1586    1587    1591    1616
                                         1639     1640      1646      1654   1659    1665    1667    1672    1717
                                         1718     1724      1734      1745   1746    1753    1760    1790    1798
                                         1817     1939      1852      1969   1893    1894    1897    1904    1905
                                         1908
       FSRCH                 5            708      731       734       879    917     924     925     939     944
                                          952      953       964       970    993    1028    1033    1035    1037
                                         1042     1048      1145      1153   1249    1299    1302    1304    1408
                                         1416     1417      1427      1431   1436    1439    1514    1520    1534
                                         1536     1546      1560      1565   1577    1617    1623    1641    1655
                                         1666     1673      1695      1696   1702    1719    1732    1733    1739
                                         1747     1761      1789      1797   1799    1802    1809    1814    1815
                                         1838     1951      1853      1856   1863    1868    1892    1915    1920
       F1A         REAL      4            694      698       745       825    826    1111    1193    1203    1215
                                         1255     1264      1269      1396
       F1B         REAL      4            695      696       699       700    746     883     884    1112    1113
                                         1114     1204      1216      1521   1578    1581    1624    1703    1921
       F2A         REAL      4            720      722       741       743    765     771     790     811     835
                                          878      894      1091      1096   1192
       F2C         REAL      4            709      768       772       775    776     838     841     880     881
                                          895      896       918       919    929     931     942     943     945
                                         1092     1093      1097      1098   1157    1165    1300    1303    1305
                                         1321     1322      1323      1356   1357    1358    1430    1437    1517
                                         1590     1593      1620      1658   1661    1699    1763    1793    1810
                                         1816     1818      1840      1844   1864    1870    1871    1907    1910
                                         1916
       F3A         REAL      4            715      717       793       801    816    1179    1315
       F3D         REAL      4            732      735       819       926    956     969     975     977     985
                                          994     1001      1005      1008   1017    1019    1021    1022    1031
                                         1034     1036      1038      1045   1046    1049    1050    1147    1155
                                         1252     1316      1317      1378   1413    1420    1421    1422    1432
                                         1439     1540      1549      1552   1563    1568    1645    1648    1671
                                         1676     1723      1726      1738   1741    1751    1755    1801    1804
                                         1855     1858      1896      1898
       SIN         REAL      1 LIBRARY    629
       SQRT        REAL      1 LIBRARY    594

INLINE FUNCTIONS   TYPE    ARGS        DEF LINE   REFERENCES
       ABS         REAL      1  INTRIN               585      592       593    594     595     627     888     889
                                                     931      986      1025   1026    1525    1772
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      SUBROUTINE AEROYBB    74/175  OPT=2                                  FTN 4.8+538       82/10/22. 15.12.40       PAGE    55

INLINE FUNCTIONS   TYPE    ARGS          DEF LINE   REFERENCES
       AMAX1       REAL     0  INTRIN                 588     591     600     603     604     612     618     640
                                                      642     644     647     649     651     653     655     658
                                                      660     665     668     671     673     675     677     685
                                                      725     737     875    1003    1010    1077    1149    1170
                                                     1183    1207    1208    1219    1220    1257    1330    1346
                                                     1364    1371    1395    1398    1501    1502    1572    1708
                                                     1784    1785    1949
       AMIN1       REAL     0  INTRIN                 588     591     600     603     604     612     618     640
                                                      642     644     647     649     651     653     655     658
                                                      660     665     668     671     673     675     677     685
                                                      725     737     875    1003    1010    1077    1149    1170
                                                     1183    1207    1208    1219    1220    1257    1330    1346
                                                     1364    1371    1395    1398    1501    1502    1572    1709
                                                     1794    1785    1949
       SIGN        REAL     2  INTRIN                 628     980    1054    1057

STATEMENT LABELS                        DEF LINE   REFERENCES
    26   1                                 576     560
   434   100                               698     693
   443   101                               704     697
   612   102                               756     704
   614   103                               763     754
  2106   105                              1175    1160
  2272   106                              1237    1189
  2274   107                              1240    1236
   675   108                               798     787
   673   109                               796     791
   704   110                               802     794     797
  2411   111                              1281    1245
  2413   112                              1284    1280
  2260   113                              1228    1201
  2224   114                              1214    1202
  2265   115                              1232    1213
  2271   116                              1235    1227    1231
  2410   117                              1279    1273    1276
  1022   120                               849     823     831     845
   764   121                               832     824     827
   745   122                               824     808
  2132   130                              1185    1191
  2403   140                              1274    1262
  2371   141                              1268    1263
  2406   142                              1277    1267
  1632   195                              1066    1061
  1630   196                              1063     990     991    1012
  3046   197                              1447    1442
  3044   198                              1443    1406
  1637   199                              1072    1067
  1155   200                               910     873
  1166   201                              1084     909    1071
  3201   206                              1479    1475
  3212   207                              1484    1480
  2456   300                              1310    1295
  2667   301                              1384    1294    1311
  2672   302                              1389    1309
  2546   303                              1340    1318    1327
  2572   304                              1351    1344
  2635   305                              1369    1362
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      SUBROUTINE AEROY8B     74/175  OPT=2                       FTN 4.8+538        82/10/22. 15.12.40        PAGE    56

STATEMENT LABELS                     DEF LINE    REFERENCES
  2541   306                           1335        1328
  2676   400                           1393        1334      1339      1350      1368      1383      1389
  3264   600                           1519        1503
  3311   601                           1528        1518
  3313   602                           1530        1523      1527
  3504   603                           1622        1606
  3520   604                           1629        1621
  3522   605                           1631        1626      1628
  3657   610                           1701        1685
  3676   611                           1711        1700
  3700   612                           1713        1705      1710
  3234   900                           1490         605
  4401   901                           1964        1489      1956
  4371   902                           1957        1944

COMMON BLOCKS    LENGTH
       FARRAY      2000
       ARDARRY    19000

STATISTICS
  PROGRAM LENGTH                       120118      5129
  CM LABELED COMMON LENGTH             510108     21000
        160000B CM USED
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SUBROUTINE YENGO       74/175  OPT=2                    FTN 4.8+538        82/10/22. 15.12.43       PAGE    1

              SUBROUTINE YENGO

        **   TYPE STATEMENTS

              REAL
             . NRTABU  , NITABU
        **   COMMON STATEMENTS

              COMMON / EGDARRY / EGD(2250)

        **   EQUIVALENCE STATEMENTS

              EQUIVALENCE
             .(WNDMLLU,EGD(   1)),(NRTABU ,EGD(  65)),(WATABU ,EGD( 212)),
             .(WFTABU ,EGD( 359)),(WFKNDU ,EGD( 695)),(WFKDAYU,EGD( 812)),
             .(WFWIU  ,EGD( 889)),(WFRCSU ,EGD( 906)),(NITABU ,EGD( 912)),
             .(WFCTBU ,EGD( 921)),(FGTABU ,EGD( 934)),(PFGABU ,EGD(1104)),
             .(DSCRUBU,EGD(1111)),(FSRCSU ,EGD(1188)),(TCFSU  ,EGD(1210)),
             .(TCWLU  ,EGD(1330)),(FKSCRBU,EGD(1350)),(FKALTU ,EGD(1353)),
             .(FSPLAYU,EGD(1425)),(EGTABU ,EGD(1505)),(FGKDAYU,EGD(1593)),
             .(FKND7DU,EGD(1665)),(FKND7WU,EGD(1695)),(FGKMDU ,EGD(1705)),
             .(EKWATRU,EGD(1742)),(FKRCSTU,EGD(1805)),(PHTABU ,EGD(1809)),
             .(PHRCSU ,EGD(1921)),(TBTABU ,EGD(1928)),(PBLIU  ,EGD(2040)),
             .(TOPTS  ,EGD(2229)),(PK3PT  ,EGD(2235))
        **   DIMENSION STATEMENTS

              DIMENSION
             .WNDMLLU(64),  NRTABU(147),   WATABU(147),
             .WFTABU(336),  WFKNDU(117),   WFKDAYU(77),
             .WFWIU(17),    WFRCSU(6),     NITABU(9),
             .WFCTBU(13),   FGTABU(170),   PFGABU(7),
             .DSCRUBU(77),  FSRCSU(22),    TCFSU(120),
             .TCWLU(20),    FKSCRBU(3),    FKALTU(72),
             .FSPLAYU(80),  EGTABU(88),    FGKDAYU(72),
             .FKND7DU(20),  FKND7WU(20),   FGKMDU(77),
             .EKWATRU(23),  FKRCSTU(4),    PHTABU(112),
             .PHRCSU(7),    TBTABU(112),   PBLIU(189),
             .TOPTS(6),     PK3PT(4)
        **   DATA STATEMENTS

        *         WINDMILL FAN RPM - 8 X 8
        *      CALIBRATED AIRSPEED - 0.0,150.0,175.0,200.0,225.0,250.0,
        *                               275.0,300.0
        *      ALTITUDE - 0.0,5000,10000,15000,20000,25000,30000,40000

                  DATA (WNDMLLU(I),I=1,64) /
             .        0.0 ,  4.7 ,  6.6 ,  8.5 , 10.3 , 11.9 , 13.4 , 14.7,
             .        0.0 ,  5.9 ,  7.8 ,  9.6 , 11.3 , 12.9 , 14.4 , 15.7,
             .        0.0 ,  6.9 ,  8.7 , 10.6 , 12.4 , 14.0 , 15.5 , 16.7,
             .        0.0 ,  7.9 ,  9.8 , 11.6 , 13.4 , 15.1 , 16.5 , 17.8,
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     .     0.0 ,  9.1 , 10.9 , 12.8 , 14.6 , 16.2 , 17.6 , 18.9,            YENGN      58
     .     0.0 , 10.0 , 11.9 , 13.8 , 15.5 , 17.2 , 18.6 , 19.8,            YENGN      59
     .     0.0 , 11.1 , 13.0 , 14.9 , 16.5 , 18.1 , 19.5 , 20.8,            YENGN      60
     .     0.0 , 13.0 , 14.9 , 16.8 , 18.5 , 20.1 , 21.5 , 22.8/            YENGN      61
                                                                            YENGN      62
                                                                            YENGN      63
*     RAM RECOVERY TABLE- 20 X 7                                            YENGN      64
*     CORRECTED RPM - 24.0,30.0,40.0,50.0,55.0,60.0,70.0,75.0,80.0,         YENGN      65
*                     85.0,87.5,90.0,92.5,95.0,97.5,100.0,102.5,            YENGN      66
*                   105.0,107.5,110.0                                       YENGN      67
*     MACH          0 - 1.2, .2 INCREMENTS                                  YENGN      68
                                                                            YENGN      69
*     RAM RECOVERY RATIO                                                    YENGN      70
                                                                            YENGN      71
      DATA (NRTABU(I),I=1,63) /                                             YENGN      72
     .   1.0   ,                                                            YENGN      73
     .    .9952 ,  .9947 ,  .9935 ,  .9923 ,  .9914 ,  .9903 ,              YENGN      74
     .    .9875 ,  .9860 ,  .9839 ,  .9812 ,  .9797 ,  .9779 ,              YENGN      75
     .    .9764 ,  .9747 ,  .9730 ,  .9717 ,  .9706 ,  .9699 ,              YENGN      76
     .    .9696 ,  .9695 ,                                                  YENGN      77
     .   1.0   ,                                                            YENGN      78
     .    .9881 ,  .9885 ,  .9890 ,  .9893 ,  .9887 ,  .9880 ,              YENGN      79
     .    .9858 ,  .9844 ,  .9828 ,  .9802 ,  .9788 ,  .9775 ,              YENGN      80
     .    .9756 ,  .9741 ,  .9725 ,  .9714 ,  .9701 ,  .9695 ,              YENGN      81
     .    .9693 ,  .9692 ,                                                  YENGN      82
     .   1.0   ,                                                            YENGN      83
     .    .9820 ,  .9831 ,  .9849 ,  .9866 ,  .9866 ,  .9862 ,              YENGN      84
     .    .9844 ,  .9827 ,  .9805 ,  .9766 ,  .9743 ,  .9723 ,              YENGN      85
     .    .9704 ,  .9685 ,  .9666 ,  .9653 ,  .9640 ,  .9632 ,              YENGN      86
     .    .9631 ,  .9630 /                                                  YENGN      87
      DATA (NRTABU(I),I=64,126) /                                           YENGN      88
     .   1.0   ,                                                            YENGN      89
     .    .9755 ,  .9778 ,  .9812 ,  .9844 ,  .9853 ,  .9855 ,              YENGN      90
     .    .9844 ,  .9830 ,  .9810 ,  .9770 ,  .9742 ,  .9714 ,              YENGN      91
     .    .9679 ,  .9645 ,  .9612 ,  .9587 ,  .9565 ,  .9554 ,              YENGN      92
     .    .9551 ,  .9550 ,                                                  YENGN      93
     .   1.0   ,                                                            YENGN      94
     .    .9345 ,  .9387 ,  .9465 ,  .9551 ,  .9598 ,  .9644 ,              YENGN      95
     .    .9732 ,  .9774 ,  .9794 ,  .9776 ,  .9757 ,  .9735 ,              YENGN      96
     .    .9705 ,  .9674 ,  .9636 ,  .9602 ,  .9573 ,  .9550 ,              YENGN      97
     .    .9546 ,  .9545 ,                                                  YENGN      98
     .   1.0   ,                                                            YENGN      99
     .    .9110 ,  .9154 ,  .9229 ,  .9313 ,  .9360 ,  .9414 ,              YENGN     100
     .    .9544 ,  .9623 ,  .9695 ,  .9748 ,  .9752 ,  .9741 ,              YENGN     101
     .    .9719 ,  .9639 ,  .9652 ,  .9616 ,  .9586 ,  .9568 ,              YENGN     102
     .    .9562 ,  .9560 /                                                  YENGN     103
      DATA (NRTABU(I),I=127,147) /                                          YENGN     104
     .   1.0   ,                                                            YENGN     105
     .    .8715 ,  .8721 ,  .8734 ,  .8756 ,  .8771 ,  .8792 ,              YENGN     106
     .    .8866 ,  .8923 ,  .9010 ,  .9145 ,  .9241 ,  .9350 ,              YENGN     107
     .    .9445 ,  .9465 ,  .9451 ,  .9410 ,  .9375 ,  .9350 ,              YENGN     108
     .    .9341 ,  .9340 /                                                  YENGN     109
                                                                            YENGN     110
                                                                            YENGN     111
                                                                            YENGN     112
*     CORRECTED AIR FLOW TABLE - 21 X 7                                     YENGN     113
*     CORRECTED RPM  0.0,24.0,30.0,40.0,50.0,60.0,70.0,75.0,80.0,           YENGN     114
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*                 82.5,85.0,87.5,90.0,92.5,95.0,97.5,100.0,                    YENGN   115
*                 102.5,105.0,107.5,110.0                                      YENGN   116
*     MACH         0 - 1.2 , .2 INCREMENTS                                     YENGN   117
                                                                               YENGN   118
*     AIR FLOW                                                                 YENGN   119
                                                                               YENGN   120
      DATA(WATABU(I),I=1,84) /                                                 YENGN   121
     .   0.0 ,  85.0 , 109.0 , 149.0 , 191.0 , 234.0 , 279.0 , 301.0 ,         YENGN   122
     . 327.0 , 339.0 , 353.0 , 369.0 , 384.0 , 401.0 , 415.0 , 425.0 ,         YENGN   123
     . 435.0 , 443.0 , 449.0 , 454.0 , 456.0 ,                                 YENGN   124
     .   0.0 ,  90.0 , 114.0 , 153.0 , 194.0 , 236.0 , 290.0 , 301.0 ,         YENGN   125
     . 327.0 , 339.0 , 353.0 , 369.0 , 384.0 , 401.0 , 415.0 , 425.0 ,         YENGN   126
     . 435.0 , 443.0 , 449.0 , 454.0 , 456.0 ,                                 YENGN   127
     .   0.0 , 107.0 , 128.0 , 163.0 , 202.0 , 240.0 , 283.0 , 303.0 ,         YENGN   128
     . 327.0 , 339.0 , 353.0 , 369.0 , 384.0 , 401.0 , 415.0 , 425.0 ,         YENGN   129
     . 435.0 , 443.0 , 449.0 , 454.0 , 456.0 ,                                 YENGN   130
     .   0.0 , 115.0 , 137.0 , 173.0 , 210.0 , 245.0 , 285.0 , 303.0 ,         YENGN   131
     . 327.0 , 339.0 , 353.0 , 369.0 , 383.0 , 401.0 , 415.0 , 425.0 ,         YENGN   132
     . 435.0 , 443.0 , 449.0 , 454.0 , 456.0 /                                 YENGN   133
      DATA (WATABU(I),I=85,147) /                                              YENGN   134
     .   0.0 , 123.0 , 144.0 , 179.0 , 214.0 , 246.0 , 284.0 , 303.0 ,         YENGN   135
     . 325.0 , 339.0 , 353.0 , 369.0 , 382.0 , 402.0 , 415.0 , 425.0 ,         YENGN   136
     . 435.0 , 443.0 , 449.0 , 454.0 , 456.0 ,                                 YENGN   137
     .   0.0 , 123.0 , 144.0 , 179.0 , 214.0 , 245.0 , 282.0 , 303.0 ,         YENGN   138
     . 324.0 , 339.0 , 353.0 , 369.0 , 382.0 , 401.0 , 415.0 , 425.0 ,         YENGN   139
     . 435.0 , 443.0 , 449.0 , 454.0 , 456.0 ,                                 YENGN   140
     .   0.0 , 123.0 , 144.0 , 179.0 , 214.0 , 245.0 , 280.0 , 303.0 ,         YENGN   141
     . 324.0 , 339.0 , 353.0 , 369.0 , 382.0 , 401.0 , 415.0 , 425.0 ,         YENGN   142
     . 435.0 , 443.0 , 449.0 , 454.0 , 456.0 /                                 YENGN   143
                                                                               YENGN   144
                                                                               YENGN   145
                                                                               YENGN   146
*     CORRECTED FUEL FLOW TABLE  12 X 28                                       YENGN   147
*     CORRECTED RPM  - 0.0,24.0,30.0,40.0,50.0,60.0,70.0,80.0,                 YENGN   148
*                      90.0,100.0,105.0,110.0                                  YENGN   149
*     DELTA T2       -  .1,.125,.15,.2,.25,.3,.35,.4,.45,.5 ,.55 ,             YENGN   150
*                       .6,.7 ,.8 ,.9,1.0,1.1,1.2,1.3,1.4,1.5,1.6,,            YENGN   151
*                      1.7,1.8 ,1.9,2.0,2.1,2.2                                YENGN   152
                                                                               YENGN   153
*     FUEL FLOW                                                                YENGN   154
                                                                               YENGN   155
      DATA (WFTABU(I),I=1,84) /                                                YENGN   156
     .    0.0 ,  120.0 ,  130.0 ,  177.0 ,  213.0 ,  390.0 ,                   YENGN   157
     .  515.0 ,  740.0 , 1020.0 , 1392.0 , 1565.0 , 1761.0 ,                   YENGN   158
     .    0.0 ,  150.0 ,  165.0 ,  221.0 ,  278.0 ,  459.0 ,                   YENGN   159
     .  610.0 ,  860.0 , 1260.0 , 1692.0 , 1900.0 , 2155.0 ,                   YENGN   160
     .    0.0 ,  180.0 ,  199.0 ,  264.0 ,  344.0 ,  553.0 ,                   YENGN   161
     .  753.0 , 1057.0 , 1495.0 , 2034.0 , 2250.0 , 2552.0 ,                   YENGN   162
     .    0.0 ,  245.0 ,  262.0 ,  348.0 ,  470.0 ,  710.0 ,                   YENGN   163
     .  955.0 , 1347.0 , 1921.0 , 2615.0 , 2957.0 , 3329.0 ,                   YENGN   164
     .    0.0 ,  304.0 ,  330.0 ,  436.0 ,  588.0 ,  854.0 ,                   YENGN   165
     . 1168.0 , 1642.0 , 2355.0 , 3182.0 , 3630.0 , 4099.0 ,                   YENGN   166
     .    0.0 ,  369.0 ,  399.0 ,  520.0 ,  707.0 , 1011.0 ,                   YENGN   167
     . 1375.0 , 1930.0 , 2773.0 , 3755.0 , 4284.0 , 4826.0 ,                   YENGN   168
     .    0.0 ,  430.0 ,  468.0 ,  609.0 ,  818.0 , 1159.0 ,                   YENGN   169
     . 1574.0 , 2225.0 , 3200.0 , 4346.0 , 4980.0 , 5599.0 /                   YENGN   170
      DATA (WFTABU(I),I=85,168) /                                              YENGN   171
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     .     0.0 ,   495.0 ,   538.0 ,   693.0 ,   932.0 ,  1310.0 ,        YENGN    172
     .  1800.0 ,  2541.0 ,  3630.0 ,  4919.0 ,  5677.0 ,  6401.0 ,        YENGN    173
     .     0.0 ,   558.0 ,   635.0 ,   779.0 ,  1041.0 ,  1480.0 ,        YENGN    174
     .  2026.0 ,  2869.0 ,  4140.0 ,  5625.0 ,  6399.0 ,  7199.0 ,        YENGN    175
     .     0.0 ,   619.0 ,   669.0 ,   867.0 ,  1150.0 ,  1643.0 ,        YENGN    176
     .  2256.0 ,  3189.0 ,  4597.0 ,  6248.0 ,  7132.0 ,  8045.0 ,        YENGN    177
     .     0.0 ,   681.0 ,   738.0 ,   955.0 ,  1258.0 ,  1808.0 ,        YENGN    178
     .  2482.0 ,  3513.0 ,  5066.0 ,  6392.0 ,  7849.0 ,  8899.0 ,        YENGN    179
     .     0.0 ,   745.0 ,   805.0 ,  1042.0 ,  1364.0 ,  1973.0 ,        YENGN    180
     .  2710.0 ,  3839.0 ,  5542.0 ,  7540.0 ,  8610.0 ,  9716.0 ,        YENGN    181
     .     0.0 ,   865.0 ,   939.0 ,  1218.0 ,  1577.0 ,  2303.0 ,        YENGN    182
     .  3168.0 ,  4491.0 ,  6489.0 ,  8842.0 , 10092.0 , 11393.0 ,        YENGN    183
     .     0.0 ,   989.0 ,  1071.0 ,  1396.0 ,  1790.0 ,  2634.0 ,        YENGN    184
     .  3625.0 ,  5146.0 ,  7441.0 , 10141.0 , 11585.0 , 13082.0 /        YENGN    185
      DATA (WFTABU(I),I=169,252) /                                        YENGN    186
     .     0.0 ,  1110.0 ,  1207.0 ,  1574.0 ,  2001.0 ,  2965.0 ,        YENGN    187
     .  4085.0 ,  5805.0 ,  8399.0 , 11457.0 , 13090.0 , 14785.0 ,        YENGN    188
     .     0.0 ,  1240.0 ,  1349.0 ,  1753.0 ,  2212.0 ,  3298.0 ,        YENGN    189
     .  4546.0 ,  6460.0 ,  9350.0 , 12761.0 , 14585.0 , 16485.0 ,        YENGN    190
     .     0.0 ,  1355.0 ,  1477.0 ,  1926.0 ,  2452.0 ,  3633.0 ,        YENGN    191
     .  5013.0 ,  7130.0 , 10340.0 , 14093.0 , 16117.0 , 18300.0 ,        YENGN    192
     .     0.0 ,  1479.0 ,  1605.0 ,  2096.0 ,  2705.0 ,  3970.0 ,        YENGN    193
     .  5479.0 ,  7795.0 , 11289.0 , 15415.0 , 17631.0 , 20040.0 ,        YENGN    194
     .     0.0 ,  1602.0 ,  1731.0 ,  2263.0 ,  2960.0 ,  4308.0 ,        YENGN    195
     .  5947.0 ,  8460.0 , 12274.0 , 16773.0 , 19138.0 , 21780.0 ,        YENGN    196
     .     0.0 ,  1725.0 ,  1858.0 ,  2426.0 ,  3219.0 ,  4646.0 ,        YENGN    197
     .  6415.0 ,  9128.0 , 13253.0 , 18210.0 , 20636.0 , 23520.0 ,        YENGN    198
     .     0.0 ,  1849.0 ,  1981.0 ,  2586.0 ,  3465.0 ,  4980.0 ,        YENGN    199
     .  6885.0 ,  9798.0 , 14213.0 , 19550.0 , 22126.0 , 25270.0 /        YENGN    200
      DATA (WFTABU(I),I=253,336) /                                        YENGN    201
     .     0.0 ,  1970.0 ,  2100.0 ,  2742.0 ,  6370.0 ,  5316.0 ,        YENGN    202
     .  7356.0 , 10470.0 , 15225.0 , 20910.0 , 23609.0 , 27030.0 ,        YENGN    203
     .     0.0 ,  2099.0 ,  2225.0 ,  2894.0 ,  3878.0 ,  5652.0 ,        YENGN    204
     .  7827.0 , 11144.0 , 16300.0 , 22230.0 , 25083.0 , 28780.0 ,        YENGN    205
     .     0.0 ,  2221.0 ,  2380.0 ,  3043.0 ,  4109.0 ,  5990.0 ,        YENGN    206
     .  8297.0 , 11819.0 , 17310.0 , 23550.0 , 26549.0 , 30510.0 ,        YENGN    207
     .     0.0 ,  2345.0 ,  2525.0 ,  3189.0 ,  4350.0 ,  6330.0 ,        YENGN    208
     .  8768.0 , 12496.0 , 18340.0 , 24900.0 , 28008.0 , 32250.0 ,        YENGN    209
     .     0.0 ,  2465.0 ,  2660.0 ,  3329.0 ,  4605.0 ,  6671.0 ,        YENGN    210
     .  9238.0 , 13176.0 , 19360.0 , 26250.0 , 29458.0 , 34030.0 ,        YENGN    211
     .     0.0 ,  2590.0 ,  2810.0 ,  3467.0 ,  4860.0 ,  7011.0 ,        YENGN    212
     .  9711.0 , 13865.0 , 20390.0 , 27550.0 , 30900.0 , 35800.0 ,        YENGN    213
     .     0.0 ,  2715.0 ,  2950.0 ,  3601.0 ,  5180.0 ,  7348.0 ,        YENGN    214
     . 10160.0 , 14550.0 , 21410.0 , 28890.0 , 32334.0 , 37800.0 /        YENGN    215
                                                                          YENGN    216
                                                                          YENGN    217
*     MACH NO CORRECTION TO FUEL FLOW   -  13 X 9                         YENGN    218
*     CORRECTED RPM  -  24.0 , 30.0 , 35.0 , 40.0 , 45.0 , 50.0, 60.0,    YENGN    219
*                      70.0 , 80.0 , 90.0 ,100.0 ,105.0 ,110.0            YENGN    220
*     MACH NO        -  0.0 , .1 , .2 , .3 , .4 , .6 , .8 , 1.0 ,1.2      YENGN    221
                                                                          YENGN    222
      DATA (WFKMOH(I),I=1,65)   /                                         YENGN    223
     .  1.0000 , 1.0000 , 1.0000 , 1.0000 , 1.0000 , 1.0000 ,             YENGN    224
     .  1.0000 , 1.0000 , 1.0000 , 1.0000 , 1.0000 , 1.0000 ,             YENGN    225
     .  1.0000 ,                                                          YENGN    226
     .   .9800 ,  .9830 ,  .9870 ,  .9860 ,  .9860 ,  .9870 ,             YENGN    227
     .   .9790 ,  .9930 ,  .9950 ,  .9930 ,  .9970 ,  .9999 ,             YENGN    228
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     .  1.0002   ,
     .   .9560   ,   .9590   ,   .9600   ,   .9614   ,   .9630   ,   .9666   ,
     .   .9723   ,   .9780   ,   .9878   ,   .9890   ,   .9969   ,   .9998   ,
     .  1.0304   ,
     .   .9930   ,   .8990   ,   .8990   ,   .9110   ,   .9130   ,   .9240   ,
     .   .9420   ,   .9510   ,   .9620   ,   .9810   ,   .9970   ,  1.0003   ,
     .  1.001    ,
     .   .7800   ,   .7914   ,   .8030   ,   .8175   ,   .8390   ,   .8599   ,
     .   .8893   ,   .9130   ,   .9362   ,   .9647   ,   .9970   ,  1.0013   ,
     .  1.0017   /
      DATA (WFKMOH(I),I=66,117) /
     .   .5390   ,   .5559   ,   .5750   ,   .6064   ,   .6640   ,   .7099   ,
     .   .7707   ,   .8215   ,   .8734   ,   .9363   ,   .9996   ,  1.0041   ,
     .  1.0050   ,
     .   .3860   ,   .4050   ,   .4280   ,   .4580   ,   .5130   ,   .5719   ,
     .   .6603   ,   .7295   ,   .8164   ,   .9291   ,  1.0029   ,  1.0076   ,
     .  1.0085   ,
     .   .2540   ,   .2730   ,   .2990   ,   .3340   ,   .3890   ,   .4497   ,
     .   .5527   ,   .6506   ,   .7860   ,   .9322   ,  1.0066   ,  1.0116   ,
     .  1.0121   ,
     .   .1300   ,   .1580   ,   .1910   ,   .2280   ,   .2820   ,   .3475   ,
     .   .4759   ,   .6057   ,   .7833   ,   .9365   ,  1.0115   ,  1.0169   ,
     .  1.0237   /


*     AMBIENT CONDITIONS CORRECTION TO FUEL FLOW - 11 X 7
*     THETA AMBIENT  - .625, .7 , .7938 , .8625 , .8969, .9313,
*                      .9657 , 1.0 , 1.025 , 1.05 , 1.1
*     ALTITUDE       - 0.0 , 5000.0 , 10000.0 , 15000.0 , 20000.0 ,
*                      30000.0 , 40000.0

      DATA (WFKDAYU(I),I=1,44) /
     .   .9335 ,  .9472 ,  .9636 ,  .9758 ,  .9818 ,  .9880 ,  .9938 ,
     .  1.0    , 1.0038 , 1.0081 , 1.0163 ,
     .   .9423 ,  .9550 ,  .9708 ,  .9823 ,  .9883 ,  .9947 , 1.0    ,
     .  1.0053 , 1.009  , 1.0132 , 1.02   ,
     .   .9499 ,  .9616 ,  .9772 ,  .9885 ,  .9943 , 1.0    , 1.0056 ,
     .  1.0115 , 1.0160 , 1.02   , 1.02   ,
     .   .9558 ,  .9681 ,  .9832 ,  .9944 , 1.0    , 1.0052 , 1.0106 ,
     .  1.0159 , 1.0198 , 1.02   , 1.02   /
      DATA (WFKDAYU(I),I=45,77) /
     .   .9628 ,  .9748 ,  .9893 , 1.0    , 1.0053 , 1.0105 , 1.0156 ,
     .  1.02   , 1.02   , 1.02   , 1.02   ,
     .   .9736 ,  .9854 , 1.00   , 1.0089 , 1.0135 , 1.0179 , 1.02   ,
     .  1.02   , 1.02   , 1.02   , 1.02   ,
     .   .9815 ,  .9926 , 1.0063 , 1.0165 , 1.02   , 1.02   , 1.02   ,
     .  1.02   , 1.02   , 1.02   , 1.02   /


*     WATER INJECTION CORRECTION TO FUEL FLOW  - 17
*     CORRECTED RPM  -  0.0,24.0,30.0,40.0,50.0,55.0, 60.0,65.0,
*                      73.0,75.0,80.0,85.0,90.0,95.0,100.0,105.0,110.0
      DATA (WFWIU(I),I=1,17) /
     .   72.0 ,  72.0 ,  85.0 , 118.0 , 156.0 , 177.0 , 201.0 , 228.0 ,
     .  260.0 , 298.0 , 347.0 , 407.0 , 476.0 , 550.0 , 629.0 , 707.0 ,
     .  787.0 /
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                                                                            YENGN      286
                                                                            YENGN      287
      *     RCS CORRECTION TO FUEL FLOW  -  6                                YENGN      288
      *     CORRECTED RPM  -  55.0 , 80.0 , 90.0 , 97.5 , 105.0 ,110.0       YENGN      289
                                                                            YENGN      290
            DATA (WFRCSH(I),I=1,6) /                                         YENGN      291
           .  61.0 ,  61.0 ,  65.0 ,  67.0 ,  66.0 ,  66.0 /                 YENGN      292
                                                                            YENGN      293
                                                                            YENGN      294
                                                                            YENGN      295
      ******             HARRIER THROTTLE QUADRANT                          YENGN      296
      **  RPM COMMAND - 9                                                   YENGN      297
      *     POWER SPINDLE ANGLE - 20.0,22.0,30.0,40.0,45.0,46.0,60.0,        YENGN      298
      *                           71.5,75.0                                  YENGN      299
      *                                                                     YENGN      300
                                                                            YENGN      301
            DATA N1TABU/                                                    YENGN      302
           . 26.8 , 26.8 , 44.5 , 70.0 , 83.5 , 87.9 , 95.0 , 102.8 , 102.8 / YENGN    303
                                                                            YENGN      304
      ******FUEL FLOW COMMAND                                               YENGN      305
      *     POWER SPINDLE ANGLE - 0.0,18.0,22.0,25.0,30.0,35.0,40.0,         YENGN      306
      *                           42.5,45.0,47.5,50.0,65.0,75.0              YENGN      307
                                                                            YENGN      308
            DATA WFCTBU /                                                   YENGN      309
           .     0.0,   1250.0,   1250.0,   1300.0,   2000.0,   3200.0,     YENGN      310
           . 4800.0,   6050.0,   7450.0,   9250.0,  11650.0,  27300.0,      YENGN      311
           .37700.0  /                                                      YENGN      312
                                                                            YENGN      313
                                                                            YENGN      314
                                                                            YENGN      315
      *     GROSS THRUST SEA LEVEL STD DAY - 11 X 6                          YENGN      316
      *     CORRECTED RPM - 24 ,30,40,50,60,70,80,85,90,95.5,100,102,103.5   YENGN      317
      *                     105,107,110                                      YENGN      318
      *     MACH          - 0.0,.0756,.1512,.2,.2268,.3024,.4,.6,.8,1.0      YENGN      319
                                                                            YENGN      320
            DATA (FGTAHH(I),I=1,68) /                                        YENGN      321
           .     0.0,                                                        YENGN      322
           .   580.0,    918.0,   1936.0,   3299.0,   4761.0,   6852.0,   9898.0,  YENGN   323
           . 11790.0,  14153.0,  16623.0,  18572.0,  19206.0,  19680.0,  20153.0,  YENGN   324
           . 20701.0,  21529.0,                                              YENGN      325
           .     0.0,                                                        YENGN      326
           .   600.0,    950.0,   1960.0,   3350.0,   4820.0,   6899.0,   9961.0,  YENGN   327
           . 11857.0,  14251.0,  16745.0,  18711.0,  19350.0,  19828.0,  20278.0,  YENGN   328
           . 20356.0,  21720.0,                                              YENGN      329
           .     0.0,                                                        YENGN      330
           .   649.0,   1005.0,   2050.0,   3440.0,   4935.0,   7052.0,  10159.0,  YENGN   331
           . 12089.0,  14530.0,  17083.0,  19097.0,  19750.0,  20239.0,  20690.0,  YENGN   332
           . 21287.0,  22160.0,                                              YENGN      333
           .     0.0,                                                        YENGN      334
           .   699.0,   1057.0,   2111.0,   3532.0,   5036.0,   7207.0,  10356.0,  YENGN   335
           . 12308.0,  14791.0,  17376.0,  19433.0,  20100.0,  20598.0,  21094.0,  YENGN   336
           . 21665.0,  22514.0/                                              YENGN      337
            DATA (FGTAHH(I),I=69,119) /                                       YENGN      338
           .     0.0,                                                        YENGN      339
           .   710.0,   1090.0,   2150.0,   3585.0,   5095.0,   7312.0,  10490.0,  YENGN   340
           . 12459.0,  14957.0,  17585.0,  19672.0,  20344.0,  20847.0,  21310.0,  YENGN   341
           . 21924.0,  22840.0,                                              YENGN      342
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SUBROUTINE YENGD       74/175  OPT=2                          FTN 4.8+538        82/10/22. 15.12.43        PAGE      7

          .    0.0,                                                                   YENGN        343
          .  405.0,  1200.0,  2330.0,  3805.0,  5345.0,  7608.0, 10969.0,            YENGN        344
          . 12999.0, 15590.0, 18339.0, 20538.0, 21230.0, 21747.0, 22210.0,           YENGN        345
          . 22855.0, 23750.0,                                                         YENGN        346
          .    0.0,                                                                   YENGN        347
          .  1000.0,  1435.0,  2695.0,  4298.0,  5946.0,  8373.0, 11830.0,           YENGN        348
          . 13965.0, 16717.0, 19670.0, 22037.0, 22756.0, 23294.0, 23831.0,           YENGN        349
          . 24453.0, 25344.0/                                                         YENGN        350
           DATA (FGTABU(I),I=120,170) /                                               YENGN        351
          .    0.0,                                                                   YENGN        352
          .  1690.0,  2316.0,  3790.0,  5739.0,  7660.0, 10537.0, 14627.0,           YENGN        353
          . 17187.0, 20518.0, 24152.0, 26853.0, 27643.0, 28234.0, 28821.0,           YENGN        354
          . 29520.0, 30505.0,                                                         YENGN        355
          .    0.0,                                                                   YENGN        356
          .  2780.0,  3600.0,  5300.0,  7589.0, 10044.0, 13737.0, 19164.0,           YENGN        357
          . 22593.0, 27134.0, 31666.0, 34867.0, 35780.0, 36455.0, 37115.0,           YENGN        358
          . 37955.0, 39060.0,                                                         YENGN        359
          .    0.0,                                                                   YENGN        360
          .  4640.0,  5890.0,  8050.0, 10498.0, 13583.0, 18392.0, 26049.0,           YENGN        361
          . 31046.0, 36632.0, 42840.0, 46750.0, 48030.0, 48800.0, 49540.0,           YENGN        362
          . 50510.0, 51830.0/                                                         YENGN        363
                                                                                      YENGN        364
      *    RCS BLEED CORRECTION TO GROSS THRUST -  7                                  YENGN        365
      *    CORRECTED RPM - 40.0, 85.0, 90.0, 45.0, 100.0,102.5,105                    YENGN        366
           DATA (PFGABU(I),I=1,7)  /                                                  YENGN        367
          .      21.5,     24.2,     29.5,     36.8,     43.0,     46.6,     47.5/     YENGN        368
                                                                                      YENGN        369
                                                                                      YENGN        370
                                                                                      YENGN        371
      *  SCRUB DRAG - 7X 11                                                           YENGN        372
      *    CORRECTED RPM- 60.0,70.0,80.0,90.0,100.0,105.0,110.0                       YENGN        373
      *    MACH NO. - 0.0, .1, .2, .3, .4, .5, .6, .7, .8, .9, 1.0                    YENGN        374
                                                                                      YENGN        375
           DATA (DSCRUBU(I),I=1,77) /                                                 YENGN        376
          .     0.0,     0.0,     0.0,    11.0,    77.5,   161.5,   222.0,           YENGN        377
          .     0.0,     0.0,     0.0,    12.0,    86.0,   175.0,   234.0,           YENGN        378
          .     0.0,     0.0,     0.0,    12.7,   100.0,   195.0,   255.0,           YENGN        379
          .     0.0,     0.0,      .8,    14.0,   133.0,   228.0,   294.0,           YENGN        380
          .     0.0,     0.0,     1.7,    18.5,   183.0,   286.0,   349.5,           YENGN        381
          .     0.0,     0.0,     5.0,    24.5,   254.0,   366.0,   422.0,           YENGN        382
          .     0.0,     0.0,     6.1,    42.5,   335.0,   431.0,   485.0,           YENGN        383
          .     0.0,     0.0,     7.5,    93.0,   420.0,   474.0,   516.0,           YENGN        384
          .     0.0,      .3,    15.6,   200.0,   477.0,   505.5,   534.0,           YENGN        385
          .     0.0,     4.5,    40.0,   311.0,   494.0,   524.0,   553.0,           YENGN        386
          .     0.0,     5.6,    80.5,   394.0,   508.0,   541.7,   570.0/           YENGN        387
                                                                                      YENGN        388
                                                                                      YENGN        389
                                                                                      YENGN        390
      *  RCS CORRECTION TO F.S. THRUST CENTERLINE -  11 X 2                           YENGN        391
      *    BLEED FLOW -  0.0, 2.0, 4.0, 6.0, 8.0, 10.0,12.0 , 14.0, 16.0,             YENGN        392
      *     18.0, 20.0                                                                YENGN        393
      *    CORRECTED RPM -  70.0 , 80.0                                               YENGN        394
                                                                                      YENGN        395
           DATA (FSRCSU(I),I=1,22)  /                                                 YENGN        396
          .    1.0   ,    .9995,    .9990,    .9985,    .9979,    .9974,             YENGN        397
          .     .9969,    .9964,    .9959,    .9955,    .9951,                       YENGN        398
          .    1.0   ,    .9997,    .9994,    .9990,    .9986,    .9981,             YENGN        399
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```
     .     .9977,    .9974,    .9970,    .9967,    .9964/

*    ENGINE THRUST CENTER - FUSELAGE STATION - 19 X 6
*       CORRECTED RPM - 20.0,27.0,30.0,35.0,40.0,45.0,50.0,55.0,60.0,
*         65.0,70.0,75.0,80.0,85.0,90.0,95.0,100.0,105.0,110.0
*       NOZZLE POSITION - 0.0 , 55.0 , 60.0,70.0,81.0, 98.
        DATA (TCFSU(I),I=1,60) /
     .     316.9,
     .     320.3,   326.6,   329.0,   330.3,   333.2,   334.5,   335.5,   336.4,
     .     337.1,   337.7,   338.6,   339.5,   340.5,   341.7,   343.0,   344.4,
     .     346.0,   347.7,   349.3,
     .     316.9,
     .     320.3,   326.6,   329.0,   330.3,   333.2,   334.5,   335.5,   336.4,
     .     337.1,   337.7,   338.6,   339.5,   340.5,   341.7,   343.0,   344.4,
     .     346.0,   347.7,   349.3,
     .     316.9,
     .     320.3,   326.3,   328.8,   330.1,   333.0,   334.3,   335.3,   336.1,
     .     336.8,   337.5,   338.4,   339.3,   340.3,   341.5,   342.7,   344.1,
     .     345.7,   347.3,   348.9/
        DATA (TCFSU(I),I=61,120) /
     .     316.9,
     .     320.3,   326.0,   328.5,   329.9,   332.8,   334.0,   335.0,   335.8,
     .     336.5,   337.2,   338.0,   338.9,   339.9,   341.1,   342.4,   343.7,
     .     345.3,   346.9,   348.5,
     .     316.9,
     .     320.3,   325.9,   328.1,   329.5,   332.4,   333.6,   334.6,   335.4,
     .     336.2,   336.9,   337.7,   338.6,   339.6,   340.8,   342.0,   343.4,
     .     344.9,   346.5,   348.1,
     .     316.9,
     .     320.3,   325.5,   327.7,   329.0,   331.9,   333.2,   334.2,   335.0,
     .     335.7,   336.4,   337.2,   338.1,   339.1,   340.2,   341.5,   342.9,
     .     344.5,   346.2,   347.8/

*    ENGINE THRUST CENTER - WATER LINE  -  19
*       CORRECTED RPM - 20.0,27.0,30.0,35.0,40.0,45.0,50.0,55.0,60.0,
*         65.0,70.0,75.0,80.0,85.0,90.0,95.0,100.0,105.0,110.0

        DATA (TCWLU(I),I=1,20) /
     .      92.5,
     .      92.20,    91.95,    91.83,    91.70,    91.61,    91.58,    91.51,
     .      91.49,    91.44,    91.40,    91.38,    91.32,    91.23,    91.19,
     .      91.12,    91.08,    91.00,    90.97,    90.92 /

*    NOZZLE CORRECTION TO SCRUB DRAG  - 3
*       NOZZLE POSITION - 0.0,10.0,20.0

        DATA (FKSCRBU(I),I=1,3) /
     .      1.0,      .5,      0.0 /
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*       ALTITUDE CORRECTION TO GROSS THRUST - 9 X 8
*       CORRECTED RPM - 40.0,50.0,60.0,70.0,80.0,90.0,100.0,105.0,110.0
*       AMBIENT PRESSURE - 1.682 ,2.72,4.364,6.754,8.294, 10.11,12.23,
*                          14.696

        DATA (FKALTU(I),I=1,72) /
     .     .1210,     .1150,    .1134,    .1146,    .1137,    .1131,    .1143,
     .     .1144,     .1147,
     .     .1940,     .1880,    .1833,    .1854,    .1840,    .1828,    .1848,
     .     .1849,     .1854,
     .     .3020,     .2970,    .2946,    .2972,    .2955,    .2939,    .2964,
     .     .2966,     .2973,
     .     .4630,     .4625,    .4573,    .4595,    .4582,    .4567,    .4586,
     .     .4589,     .4598,
     .     .5660,     .568 ,    .5623,    .5642,    .5632,    .5519,    .5632,
     .     .5636,     .5645,
     .     .6894,     .689 ,    .6861,    .6874,    .6868,    .6859,    .6866,
     .     .6871,     .6878,
     .     .8331,     .833 ,    .8311,    .8317,    .8316,    .8310,    .8313,
     .     .8316,     .8321,
     .    1.0   ,    1.0   ,   1.0   ,   1.0   ,   1.0   ,   1.0   ,   1.0   ,
     .    1.0   ,    1.0   /

*       SPLAY ANGLE CORRECTION TO GROSS THRUST - 9 X 8
*       CORRECTED RPM - 24.0,50.0,70.0,80.0,90.0,95.0,100.0,105.0,110.0
*       NOZZLE POSITION- 0.0,10.0,20.0,55.0,60.0,81.0, 90.0, 98.5

        DATA (FSPLAYU(I),I=1,40) /
     .    1.0   ,
     .     .9945,     .9944,    .9942,    .9940,    .9939,    .9938,    .9937,
     .     .9936,     .9936,
     .    1.0   ,
     .     .9948,     .9947,    .9945,    .9943,    .9942,    .9941,    .9940,
     .     .9940,     .9941,
     .    1.0   ,
     .     .9949,     .9948,    .9946,    .9944,    .9943,    .9942,    .9941,
     .     .9941,     .9941,
     .    1.0   ,
     .     .9937,     .9935,    .9932,    .9930,    .9928,    .9927,    .9925,
     .     .9923,     .9923/
        DATA (FSPLAYU(I),I=41,80) /
     .    1.0   ,
     .     .9932,     .9930,    .9927,    .9925,    .9922,    .9919,    .9918,
     .     .9917,     .9916,
     .    1.0   ,
     .     .9910,     .9906,    .9899,    .9896,    .9891,    .9887,    .9893,
     .     .9881,     .9880,
     .    1.0   ,
     .     .9895,     .9891,    .9883,    .9879,    .9873,    .9867,    .9863,
     .     .9861,     .9858,
     .    1.0   ,
     .     .9881,     .9873,    .9864,    .9858,    .9851,    .9845,    .9840,
     .     .9836,     .9834/
```

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*       CORRECTED EGT TABLE  11 X 8
*       CORRECTED RPM - 24.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,
*                         100.0,105.0,110.0
*       DELTA T2      -   .1 , .2 , .4 , .6 , .8 , .9 , 1.0 , 1.2

        DATA (EGTABU(I),I=1,88)    /
     .   1374.  ,  1284.  ,  1191.  ,  1191.  ,  1229.  ,  1300.  ,
     .   1415.  ,  1602.  ,  1790.  ,  1906.  ,  2022.  ,
     .   1319.  ,  1245.  ,  1162.  ,  1168.  ,  1206.  ,  1280.  ,
     .   1395.  ,  1579.  ,  1765.  ,  1887.  ,  2000.  ,
     .   1255.  ,  1183.  ,  1120.  ,  1133.  ,  1179.  ,  1252.  ,
     .   1365.  ,  1548.  ,  1733.  ,  1850.  ,  1962.  ,
     .   1214.  ,  1146.  ,  1094.  ,  1110.  ,  1156.  ,  1230.  ,
     .   1345.  ,  1525.  ,  1706.  ,  1820.  ,  1930.  ,
     .   1185.  ,  1121.  ,  1075.  ,  1092.  ,  1140.  ,  1214.  ,
     .   1326.  ,  1506.  ,  1685.  ,  1799.  ,  1907.  ,
     .   1174.  ,  1114.  ,  1073.  ,  1088.  ,  1137.  ,  1212.  ,
     .   1324.  ,  1505.  ,  1683.  ,  1795.  ,  1904.  ,
     .   1161.  ,  1106.  ,  1071.  ,  1087.  ,  1136.  ,  1211.  ,
     .   1324.  ,  1504.  ,  1682.  ,  1794.  ,  1903.  ,
     .   1150.  ,  1100.  ,  1070.  ,  1085.  ,  1135.  ,  1210.  ,
     .   1323.  ,  1504.  ,  1681.  ,  1794.  ,  1903.  /

*       ALTITUDE AND AMBIENT TEMP CORRECTIONS TO EGT - 8 X 9
*       ALTITUDE      - 0 , 5000 , 10000 , 15000 , 20000 , 30000 ,
*                         40000 , 50000
*       THETA AMBIENT -  .7 , .8 , .9 , .956 , .989 , 1.0 , 1.003,
*                         1.02,1.1
        DATA(EGKDAYU(I),I=1,72) /
     .    .9881  ,  .9890  ,  .9904  ,  .9932  ,  .9949  ,  .9968  ,
     .    .9982  ,  .9987  ,
     .    .99215 ,  .9934  ,  .9948  ,  .9966  ,  .9978  , 1.0002  ,
     .   1.0018  , 1.0021  ,
     .    .9962  ,  .9976  ,  .9989  , 1.0001  , 1.0013  , 1.0045  ,
     .   1.0059  , 1.0065  ,
     .    .9984  ,  .99965 , 1.0008  , 1.0027  , 1.0038  , 1.007   ,
     .   1.0083  , 1.0089  ,
     .    .9996  , 1.0007  , 1.002   , 1.0027  , 1.0038  , 1.007   ,
     .   1.0083  , 1.0092  ,
     .   1.0     , 1.0011  , 1.002   , 1.0027  , 1.0038  ,1.007   ,
     .   1.0083  , 1.0089  ,
     .   1.0001  , 1.0012  , 1.002   , 1.0027  , 1.0038  ,1.007   ,
     .   1.0083  , 1.0099  ,
     .   1.0006  , 1.0012  , 1.002   , 1.0027  , 1.0038  ,1.007   ,
     .   1.0083  , 1.0089  ,
     .   1.0036  , 1.0012  , 1.002   , 1.0027  , 1.0038  , 1.007   ,
     .   1.0093  , 1.0059  /

*  NOZZLE POSITION CORRECTION TO EGT DRY 5 X 4
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SUBROUTINE YENGD      74/175  OPT=2                     FTN 4.8+538        82/10/22. 15.12.43        PAGE   11

        *      CORRECTED RPM  - 24.0 , 80.0 , 90.0 , 92.5 , 94.5                 YENGN     571
        *      NOZZLE POSITION - 0.0 , 10.0 , 20.0 , 30.                         YENGN     572
                                                                                 YENGN     573
               DATA (EKNOZOU(I),I=1,20)  /                                       YENGN     574
              .  0.0 ,  0.0 ,  0.0 ,  0.0 ,  0.0 ,                               YENGN     575
              .  0.0 ,  0.0 ,  4.0 ,  5.0 ,  5.0 ,                               YENGN     576
              .  0.0 ,  0.0 ,  7.0 ,  8.7 , 10.0 ,                               YENGN     577
              .  0.0 ,  0.0 , 10.0 , 12.3 , 14.4 /                               YENGN     578
                                                                                 YENGN     579
                                                                                 YENGN     580
        *      NOZZLE POSITION CORRECTION TO EGT WET  5 X 4                      YENGN     581
        *      CORRECTED RPM  - 24.0 , 80.0 , 85.0 , 90.0 , 95.0                 YENGN     582
        *      NOZZLE POSITION - 0.0 , 10.0 , 20.0 , 30.0                        YENGN     583
                                                                                 YENGN     584
               DATA (EKNOZWU(I),I=1,20)  /                                       YENGN     585
              .  0.0 ,  0.0 ,  0.0 ,  0.0 ,  0.0 ,                               YENGN     586
              .  0.0 ,  0.0 ,  1.59,  3.2 ,  4.8 ,                               YENGN     587
              .  0.0 ,  0.0 ,  3.2 ,  6.5 ,  9.6 ,                               YENGN     588
              .  0.0 ,  0.0 ,  4.8 ,  9.7 , 14.4 /                               YENGN     589
                                                                                 YENGN     590
                                                                                 YENGN     591
        *      MACH NO. CORRECTION TO EGT - 11 X 7                               YENGN     592
        *      CORRECTED RPM - 24.0 , 30.0 , 40.0 , 50.0 , 60.0 , 70.0 ,         YENGN     593
        *                      80.0 , 90.0 ,100.0 ,105.0 ,110.0                  YENGN     594
        *      MACH NO.      - EVEN INCREMENTS   0 - 1.2                         YENGN     595
                                                                                 YENGN     596
               DATA(EGKMOU(I),I=1,77)  /                                         YENGN     597
              . 1.0   , 1.0   , 1.0   , 1.0   , 1.0   , 1.0   ,                  YENGN     598
              . 1.0   , 1.0   , 1.0   , 1.0   , 1.0   ,                          YENGN     599
              .  .959 ,  .968 ,  .970 ,  .984 ,  .946 ,  .989 ,                  YENGN     600
              .  .991 ,  .994 ,  .9983, 1.0   , 1.0   ,                          YENGN     601
              .  .790 ,  .840 ,  .915 ,  .934 ,  .946 ,  .954 ,                  YENGN     602
              .  .965 ,  .979 ,  .9975, 1.0   , 1.0   ,                          YENGN     603
              .  .721 ,  .769 ,  .818 ,  .857 ,  .883 ,  .903 ,                  YENGN     604
              .  .923 ,  .963 ,  .9983, 1.0   , 1.0   ,                          YENGN     605
              .  .531 ,  .592 ,  .694 ,  .778 ,  .819 ,  .848 ,                  YENGN     606
              .  .895 ,  .958 ,  .998 , 1.0   , 1.0   ,                          YENGN     607
              .  .400 ,  .466 ,  .582 ,  .694 ,  .753 ,  .801 ,                  YENGN     608
              .  .876 ,  .959 ,  .998 , 1.0   , 1.0   ,                          YENGN     609
              .  .300 ,  .415 ,  .514 ,  .625 ,  .703 ,  .773 ,                  YENGN     610
              .  .871 ,  .959 ,  .998 , 1.0   , 1.0   /                          YENGN     611
                                                                                 YENGN     612
                                                                                 YENGN     613
        *      WATER INJECTION TEMPERATURE CORRECTION EGT  - 23                  YENGN     614
        *      CORRECTED RPM - 24.0 , 70.0 , 75.0 , 80.0 , 82.5 , 85.0 ,         YENGN     615
        *                      87.5 , 88.5 , 90.0 , 92.5 , 93.5 , 95.0 ,         YENGN     616
        *                     100.0 ,101.0 ,102.0 ,102.5 ,103.0 ,104.0 ,         YENGN     617
        *                     105.0 ,106.5 ,107.5 ,108.0 ,110.0                  YENGN     618
                                                                                 YENGN     619
               DATA(EKWATRU(I),I = 1,23)  /                                      YENGN     620
              . 20.2 , 20.2 , 24.6 , 30.2 , 35.0 , 42.2 ,                        YENGN     621
              . 52.9 , 55.6 , 58.1 , 59.8 , 60.1 , 60.1 ,                        YENGN     622
              . 60.1 , 61.4 , 63.0 , 63.9 , 65.0 , 68.9 ,                        YENGN     623
              . 73.7 , 74.3 , 73.6 , 73.2 , 71.4 /                               YENGN     624
                                                                                 YENGN     625
                                                                                 YENGN     626
        *      RCS EFFECT ON EGT PARAMETER  -  4                                 YENGN     627
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      *     CORRECTED RPM - 60.0 , 80.0 , 105.0 , 110.0
            DATA EKRCSTU  /
          .  10.4  ,   10.4  ,    8.3  ,    8.3  /

      *     CORRECTED COMP DISCH, PRESS RATIO TABLE  16 X 7
      *     CORRECTED RPM -  0.0,24.0,30.0,40.0,50.0,60.0,65.0,70.0,75.0,80.0,
      *                       85.0,90.0,95.0,100.0,105.0,110.0
      *     MACH    0 - 1.2   ,   .2 INCREMENTS
      ******CORRECTED COMPRESSOR PRESSURE RATIO
            DATA PHTABU /
          .   0.0 ,  23.0 ,  29.0 ,  43.0 ,  60.0 ,  78.0 ,  86.0 , 100.0 ,
          . 113.0 , 126.0 , 142.0 , 159.0 , 181.0 , 202.0 , 217.0 , 226.0 ,
          .   0.0 ,  22.0 ,  29.0 ,  43.0 ,  59.0 ,  78.0 ,  87.0 ,  99.0 ,
          . 111.0 , 125.0 , 141.0 , 159.0 , 180.0 , 201.0 , 217.0 , 226.0 ,
          .   0.0 ,  20.0 ,  26.0 ,  40.0 ,  57.0 ,  75.0 ,  85.0 ,  96.0 ,
          . 108.0 , 123.0 , 139.0 , 157.0 , 180.0 , 201.0 , 217.0 , 226.0 ,
          .   0.0 ,  16.0 ,  22.0 ,  35.0 ,  53.0 ,  71.0 ,  81.0 ,  92.0 ,
          . 104.0 , 119.0 , 135.0 , 154.0 , 179.0 , 201.0 , 217.0 , 226.0 ,
          .   0.0 ,  15.0 ,  21.0 ,  33.0 ,  49.0 ,  67.0 ,  77.0 ,  88.0 ,
          . 100.0 , 115.0 , 133.0 , 154.0 , 178.0 , 201.0 , 217.0 , 226.0 ,
          .   0.0 ,  14.0 ,  20.0 ,  21.0 ,  46.0 ,  63.0 ,  73.0 ,  84.0 ,
          .  97.0 , 115.0 , 132.0 , 154.0 , 178.0 , 201.0 , 217.0 , 226.0 ,
          .   0.0 ,  13.0 ,  19.0 ,  19.0 ,  43.0 ,  60.0 ,  70.0 ,  81.0 ,
          .  96.0 , 113.0 , 132.0 , 154.0 , 178.0 , 201.0 , 217.0 , 226.0 /

      *     RCS BLEED EFFECT ON COMPRESSOR DISCHARGE PRESSURE , 7
      *     CORRECTED RPM  - 80.0 , 85.0  , 90.0 , 95.0 , 100.0 , 102.5, 105.
            DATA (PHRCSU(I),I=1,7)  /
          .   .45  ,    .48  ,    .54  ,    .60  ,    .66  ,    .685 ,  .7 /

      *     CORRECTED COMP DISCH TEMP RATIO TABLE 16 X 7
      *     MACH     0 - 1.2    ,   .2  INCREMENTS
      *     CORRECTED RPM - 0.0,24.0,30.0,40.0,50.0,60.0,65.0,70.0,
      *                       75.0,80.0,85.0,90.0,95.0,100.0,105.0,110.0
      ******CORRECTED COMPRESSOR TEMP RATIO
            DATA (TBTABU(I),I=1,64) /
          .    0.0 ,  631.0 ,  679.0 ,  749.0 ,  828.0 ,  896.0 ,  931.0 ,
          .  963.0 , 1000.0 , 1035.0 , 1074.0 , 1113.0 , 1159.0 , 1202.0 ,
          . 1239.0 , 1258.0 ,
          .    0.0 ,  627.0 ,  674.0 ,  746.0 ,  825.0 ,  893.0 ,  925.0 ,
          .  960.0 ,  996.0 , 1033.0 , 1067.0 , 1110.0 , 1155.0 , 1201.0 ,
          . 1238.0 , 1260.0 ,
          .    0.0 ,  598.0 ,  649.0 ,  733.0 ,  815.0 ,  883.0 ,  918.0 ,
          .  951.0 ,  988.0 , 1024.0 , 1063.0 , 1105.0 , 1151.0 , 1199.0 ,
          . 1236.0 , 1258.0 ,
          .    0.0 ,  559.0 ,  611.0 ,  709.0 ,  799.0 ,  870.0 ,  902.0 ,
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     .  938.0 ,  973.0 , 1013.0 , 1057.0 , 1097.0 , 1147.0 , 1196.0 ,    YENGN     685
     . 1233.0 , 1258.0 /                                                  YENGN     686
      DATA (TBTABU(I),I=65,112) /                                         YENGN     687
     .    0.0 ,  546.0 ,  599.0 ,  686.0 ,  783.0 ,  856.0 ,  888.0  ,   YENGN     688
     .  923.0 ,  960.0 , 1001.0 , 1049.0 , 1097.0 , 1143.0 , 1194.0  ,   YENGN     689
     . 1232.0 , 1260.0 ,                                                  YENGN     690
     .    0.0 ,  538.0 ,  588.0 ,  675.0 ,  768.0 ,  841.0 ,  876.0  ,   YENGN     691
     .  909.0 ,  948.0 , 1011.0 , 1041.0 , 1095.0 , 1142.0 , 1192.0  ,   YENGN     692
     . 1233.0 , 1261.0 ,                                                  YENGN     693
     .    0.0 ,  525.0 ,  575.0 ,  661.0 ,  755.0 ,  828.0 ,  862.0  ,   YENGN     694
     .  899.0 ,  939.0 ,  987.0 , 1038.0 , 1095.0 , 1140.0 , 1189.0  ,   YENGN     695
     . 1237.0 , 1260.0 /                                                  YENGN     696
*   INLET AND BOUNDARY LAYER BLEED DRAG    21X9                           YENGN     697
*   CORRECTED AIRFLOW - 100,120,140,160,180,200,220,240,260,280,300,      YENGN     698
*                       320,340,360,380,400,420,440,460,480,500           YENGN     699
*   MACH NO           - .2,.3,.4,.5,.6,.7,.8,.9,1.0                       YENGN     700
      DATA (PBLIU(I),I=1,189)  /                                          YENGN     701
     .  21*0.0 ,                                                          YENGN     702
     .  145.0, 105.0,  90.0,  55.0,  40.0,  10.0, 15*0.0 ,                YENGN     703
     .  345.0, 285.0, 220.0, 170.0, 140.0,  99.0,  70.0,  45.0,  20.0,    YENGN     704
     .  12*0.0,                                                           YENGN     705
     .  635.0, 550.0, 465.0, 375.0, 310.0, 250.0, 190.0, 140.0,  99.0,    YENGN     706
     .   55.0,  45.0,  30.0,  15.0,  8*0.0,                               YENGN     707
     .  820.0, 745.0, 655.0, 585.0, 505.0, 445.0, 365.0, 305.0, 250.0,    YENGN     708
     .  195.0, 149.0, 105.0,  65.0,  40.0,   5.0, 6*0.0,                  YENGN     709
     .1650.0,1455.0,1290.0,1120.0, 965.0, 845.0, 725.0, 610.0, 535.0,     YENGN     710
     . 449.0, 360.0, 300.0, 245.0, 190.0, 115.0,  60.0,  10.0, 4*0.0,     YENGN     711
     .2999.0,2705.0,2440.0,2165.0,1910.0,1699.0,1475.0,1270.0,1090.0,     YENGN     712
     . 905.0, 765.0, 645.0, 520.0, 420.0, 305.0, 200.0, 105.0,   5.0,     YENGN     713
     .  3*0.0,                                                            YENGN     714
     .4949.0,4590.0,4250.0,3899.0,3560.0,3255.0,2945.0,2645.0,2349.0,     YENGN     715
     .2060.0,1795.0,1545.0,1340.0,1115.0, 970.0, 799.0, 599.0, 425.0,     YENGN     716
     . 255.0,  95.0,   0.0,                                               YENGN     717
     .7498.0,7005.0,6545.0,6100.0,5655.0,5205.0,4790.0,4375.0,3999.0,     YENGN     718
     .3605.0,3240.0,2890.0,2555.0,2245.0,1940.0,1610.0,1300.0,1000.0,     YENGN     719
     . 699.0, 399.0, 100.0/                                               YENGN     720
                                                                          YENGN     721
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                                                                          YENGN     723
*      FAN SPEED ACCELERATION LIMIT                                       YENGN     724
*      FG/FGMAX -0.0,12.0,24.0,36.0,48.0,60.0                             YENGN     725
*                                                                         YENGN     726
       DATA TOPTS/                                                        YENGN     727
     . 4.0, 8.0, 13.0, 15.0, 16.0, 21.0/                                  YENGN     728
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*      FAN SPEED ACCELERATION FACTOR - 4                                  YENGN     730
*      FAN SPEED - 27.0,35.0,90.0,100.0                                   YENGN     731
*                                                                         YENGN     732
                                                                          YENGN     733
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       DATA PK3PT/                                                        YENGN     735
     . .06, .13, .30, .35/                                                YENGN     736
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       RETURN                                                             YENGN     740
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      SUBROUTINE YENGD      74/175  OPT=2                        FTN 4.8+538      82/10/22. 15.12.43      PAGE    14
                  END                                                              YENGN      742

          SYMBOLIC REFERENCE MAP (R=2)

  ENTRY POINTS       DEF LINE      REFERENCES
      1  YENGD           1            740

  VARIABLES        SN   TYPE             RELOCATION
    2126  DSCRUBU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    376
       0  EGD          REAL       ARRAY      EGDARRY      REFS      12   32*17
    3070  EGKDAYU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    548
    3250  EGKMOU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    597
    2740  EGTABU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    523
    3200  EKNOZDU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    574
    3224  EKNOZWU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    585
    3414  EKRCSTU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    630
    3365  EKWATRU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    620
    1645  FGTABU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    321      339      351
    2510  FKALTU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    464
    2505  FKSCRBU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    452
    2620  FSPLAYU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    488      501
    2243  FSRCSU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    396
     103  NRTABU       REAL       ARRAY      EGDARRY      REFS       7      17        32  DEFINED   72       89       105
    1617  N1TABU       REAL       ARRAY      EGDARRY      REFS       7      17        32  DEFINED   302
    3767  PALTU        REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    701
    2117  PFGABU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    367
    3600  PHRCSU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    662
    3420  PHTABU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    642
    4272  PK3PT        REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    735
    3607  TBTABU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    674      697
    2271  TCFSU        REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    408      421
    2461  TCWLU        REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    441
    4264  TOPTS        REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    727
     323  WATABU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    121      134
    1630  WFCTRU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    309
    1453  WFKDAYU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    261      270
    1266  WFKMOU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    223      239
    1611  WFRCSU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    291
     546  WFTABU       REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    156      171      186      201
    1570  WFWIU        REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED    282
       0  WNDMLLU      REAL       ARRAY      EGDARRY      REFS      17      32   DEFINED     53

  COMMON BLOCKS     LENGTH
          EGDARRY     2250

  STATISTICS
    PROGRAM LENGTH                      38B        3
    CM LABELED COMMON LENGTH         4312B     2250
         160000B CM USED
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*                                                                           YENGN      748
*  THE FOLLOWING TABLE LOOK-UP DATA HAS BEEN INCORPORATED FOR THE YAV-8BYENGN      749
*     NRTABU - RAM RECOVERY                                                 YENGN      750
*     WATABU - CORRECTED AIRFLOW                                            YENGN      751
*     WFTABU - CORRECTED FUEL FLOW                                          YENGN      752
*     N1TABU - COMMAND RPM                                                  YENGN      753
*     WFCTAU - COMMAND FUEL FLOW                                            YENGN      754
*     FGTABU - GROSS THRUST - CORRECTED                                     YENGN      755
*     EGTABU - JET PIPE TEMPERATURE(EGT)                                    YENGN      756
*     EGKDAYU- AMBIENT TEMPERATURE CORRECTION - EGT                         YENGN      757
*     EGKMOU - MACH NO. CORRECTION TO EGT                                   YENGN      758
*     PHTABU - COMPRESSOR DISCHARGE PRESSURE                                YENGN      759
*     TBTABU - COMPRESSOR DISCHARGE TEMPERATURE                             YENGN      760
*     EKNOZWU- EGT CORRECTIONS FOR NOZZLE POSITION - WET                    YENGN      761
*     EKWATRU- WATER INJECTION CORRECTION TO EGT                            YENGN      762
*     PHRCSU - BLEED CORRECTION TO COMPRESSOR DISCHARGE PRESSURE            YENGN      763
*     WFKDAYU- AMBIENT TEMPERATURE CORRECTION TO FUEL FLOW                  YENGN      764
*     WFWIU  - WATER INJECTION CORRECTIONS TO FUEL FLOW                     YENGN      765
*     WFRCSU - BLEED CORRECTION TO FUEL FLOW                                YENGN      766
*     EKRCSTU- BLEED CORRECTION TO EGT                                      YENGN      767
*     PEGABU - BLEED CORRECTION TO GROSS THRUST                             YENGN      768
*     FSPLAYU-SPLAY ANGLE CORRECTION TO GROSS THRUST                        YENGN      769
*     DSCRUBU-SCRUB DRAG                                                    YENGN      770
*     FSRCSU -RCS CORRECTION TO F.S. CENTERLINE                             YENGN      771
*     TCFSU  -ENGINE THRUST CENTERLINE F.S.                                 YENGN      772
*     TCWLU  -ENGINE THRUST CENTER W.L.                                     YENGN      773
*     FKSCRBU-NOZZLE CORRECTION TO SCRUB DRAG                               YENGN      774
*     FKALTU -ALTITUDE CORRECTION TO GROSS THRUST                           YENGN      775
*     EKNOZDU- EGT CORRECTIONS FOR NOZZLE POSITION - DRY                    YENGN      776
*     WFKMOU - MACH NO. CORRECTION TO FUEL FLOW                             YENGN      777
*     PBLIU  - INLET AND BOUNDARY LAYER BLEED DRAG                          YENGN      778
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*  YAV-8B EGT LIMITS - 1590 DEG. R  - NOZ.LT.16 .A. GEAR UP                 YENGN      782
*                      1778 DEG. R  - NOZ.GT.16 .O. GEAR DN                 YENGN      783
*                      1832 DEG  R  - NOZ.GT.16 .O. GEAR DN - WATER         YENGN      784
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     .(WNDMLLU,FGD(   1)),(NRTABU ,EGD(  65)),(WATABU ,EGD( 212)),       YENGN    807
     .(WFTABU ,FGD( 359)),(WFKMOU ,EGD( 695)),(WFKDAYU,EGD( 812)),       YENGN    808
     .(WFWIU  ,EGD( 889)),(WFRCSU ,EGD( 906)),(NITABU ,FGD( 912)),       YENGN    809
     .(WFCTRU ,EGD( 921)),(FGTABU ,EGD( 934)),(PFGABU ,FGD(1104)),       YENGN    810
     .(DSCRUBU,FGD(1111)),(FSRCSU ,EGD(1188)),(TCFSU  ,EGD(1210)),       YENGN    811
     .(TCWLU  ,EGD(1330)),(FKSCPPU,EGD(1350)),(FKALTU ,EGD(1353)),       YENGN    812
     .(FSPLAYU,EGD(1425)),(EGTABU ,FGD(1505)),(FGKDAYU,EGD(1593)),       YENGN    813
     .(EKNOZDU,EGD(1665)),(EKMOZWU,FGD(1685)),(FGKMOU ,EGD(1705)),       YENGN    814
     .(EKWATRU,EGD(1792)),(FKRCSTU,EGD(1805)),(PHTABU ,FGD(1809)),       YENGN    815
     .(PHRCSU ,EGD(1921)),(TRTABU ,EGD(1928)),(PBLTU  ,FGD(2040)),       YENGN    816
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     . (SINBFT  ,A( 121))                                                YENGN    836
     .,(COSBFT  ,A( 122))                                                YENGN    837
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     . (CGFS    ,A( 253))                                                YENGN    848
     .,(CGBL    ,A( 254))                                                YENGN    849
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     . (PWFGC   ,A(757)) YENGN 867
     .,(PKSPLAY,A(758))  YENGN 868
     .,(DTHR    ,A(760)) YENGN 869
     .,(FKALT   ,A(761)) YENGN 870
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     .,(PPM     ,A(771)) YENGN 873
     .,(PCTHR   ,A(776)) YENGN 874
     .,(PCNOZ   ,A(777)) YENGN 875
     .,(PWACOP  ,A(778)) YENGN 876
      EQUIVALENCE        YENGN 877
     . (TDFFUEL,A(781))  YENGN 878
     .,(POFUEL  ,A(782)) YENGN 879
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     .,(PWFSS   ,A(785)) YENGN 881
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     .,(PNOZPOS,A(788))  YENGN 884
     .,(PFGCOR  ,A(789)) YENGN 885
     .,(PCFUEL  ,A(790)) YENGN 886
     .,(TZERO   ,A(792)) YENGN 887
     .,(PFGBLDC,A(793))  YENGN 888
      EQUIVALENCE        YENGN 889
     . (PWFBLDC,A(794))  YENGN 890
     .,(PFGBLDC,A(795))  YENGN 891
     .,(PWFCOR  ,A(796)) YENGN 892
     .,(PNFCOM1,A(798))  YENGN 893
     .,(PWFCOM  ,A(799)) YENGN 894
     .,(PTEMP   ,A(800)) YENGN 895
     .,(PWFACFL,A(801))  YENGN 896
     .,(PWFDCFL,A(802))  YENGN 897
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     .,(PEGTCOR,A(807))  YENGN 902
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     .,(IWATER  ,A(835))                        YENGN     922
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     .,(PNFRCS  ,A(847))                        YENGN     933
     .,(PKOPER  ,A(848))                        YENGN     934
     .,(FGOFGM  ,A(849))                        YENGN     935
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     .,(TTIME   ,A(855))                        YENGN     941
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     .,(IJPT    ,A(875))                        YENGN     947
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     . (DNGEAR  ,A(883))                        YENGN     949
     .,(DTCFS   ,A(888))                        YENGN     950
     .,(IWATFLD,A(894))                         YENGN     951
     .,(SVCAL   ,A(929))                        YENGN     952
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     .FSPLAYU(80),  FGTABU(88),   EGKDAYU(72),  YENGN     965
     .FKNOZDU(20),  FKNOZWU(20),  FGKMOU(77),   YENGN     966
     .FKWATRU(23),  FKRCSTU(4),   PHTABU(112),  YENGN     967
     .PHPCSU(7),    TRTABU(112),  PBLIU(189),   YENGN     968
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     .NPTE7(2),           NPTE8(2),            NPTE9(2),              YENGN    995
     .NPTE10(2),          NPTE11(2),           NPTE12(2),             YENGN    996
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     .BNDE4(2),           BNDE5(4),            BNDE6(2),              YENGN   1002
     .BNDE7(4),           BNDE8(4),            BNDE9(4),              YENGN   1003
     .BNDE10(4),          BNDE11(4),           BNDE12(2),             YENGN   1004
     .BNDE13(2),          BNDE14(4),           BNDE15(4),             YENGN   1005
     .BNDE16(4),          BNDE17(4),           BNDE18(4),             YENGN   1006
     .BNDE20(4),          BNDE21(4),           BNDE22(4)              YENGN   1007
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     .,XK2     /       .5 /                                           YENGN   1019
     .,PSAR    /      0.0 /                                           YENGN   1020
     .,FUELLOW /   1296.0 /                                           YENGN   1021
     .,BINGO   /    500.0 /                                           YENGN   1022
     .,PK1     /       .1 /                                           YENGN   1023
     .,PK2     /     15.0 /                                           YENGN   1024
     .,PK6     /      1.24/                                           YENGN   1025
                                                                      YENGN   1026
      DATA                                                            YENGN   1027
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 . IPSA2   / 0 /                                                        YENGN    1028
 ..IPSA3   / 0 /                                                        YENGN    1029
 ..IN21    / 0 /                                                        YENGN    1030
 ..NPTO    / 6 /                                                        YENGN    1031
 ..NRPNTRL/ 4 /                                                         YENGN    1032
 ..PKWF1   / 0.465 /                                                    YENGN    1033
 ..PK4     / 2.0 /                                                      YENGN    1034
 ..PK5     / 300.0 /                                                    YENGN    1035
 ..PNFCOMX/ 20.0 , 22.0 , 30.0 , 40.0 , 45.0 , 46.0 , 60.0 , 71.5       YENGN    1036
 ..  75.0   /                                                           YENGN    1037
 ..PNFCOM2/ 0.0 , 18.0 , 22.0 , 25.0 , 30.0 , 35.0 , 40.0               YENGN    1038
 ..         42.5 , 45.0 , 47.5 , 50.0 , 65.0 , 75.0 /                   YENGN    1039
                                                                        YENGN    1040
  DATA                                                                  YENGN    1041
 . PNFTB1   /                                                           YENGN    1042
 .  0.0 ,   24.0 , 30.0 , 40.0 , 50.0 , 55.0 , 60.0 , 70.0 , 75.0       YENGN    1043
 .. 80.0 ,   85.0 , 87.5 , 90.0 , 92.5 , 95.0 , 97.5 ,100.0 ,102.5      YENGN    1044
 ..105.0 , 107.5 ,110.0 /                                               YENGN    1045
 ..PNFTB2 / 24.0 , 30.0 , 40.0 , 50.0 , 60.0 , 70.0 , 80.0              YENGN    1046
 ..90.0 ,  100.0 ,105.0 ,110.0 /                                        YENGN    1047
                                                                        YENGN    1048
  DATA                                                                  YENGN    1049
 . PNFTB3 / 0.0 , 24.0 , 30.0 , 40.0 , 50.0 , 60.0 , 70.0 , 80.0        YENGN    1050
 .. 90.0 ,100.0 ,105.0 ,110.0 /                                         YENGN    1051
 ..PNFTB4 /  0.0                                                        YENGN    1052
 ..          24.0 , 30.0 , 40.0 , 50.0 , 60.0 , 70.0 , 80.0 , 85.0      YENGN    1053
 .. 90.3 ,   95.5 ,100.0 ,102.0 ,103.5 ,105.0 ,107.0 ,110.0 /           YENGN    1054
 ..PNFTB5 /  0.0 , 24.0 , 30.0 , 40.0 , 50.0 , 60.0 , 70.0 , 75.0       YENGN    1055
 .. 80.0 ,   82.5 , 85.0 , 87.5 , 90.0 , 92.5 , 95.0 , 97.5 ,100.0      YENGN    1056
 ..102.5 , 105.0 ,107.5 ,110.0 /                                        YENGN    1057
 ..PNFTB6 / 80.0, 85.0, 90.0, 95.0, 100.0,102.5, 105.0 /                YENGN    1058
 ..PNFTB8 / 0.0  , 24.0 , 30.0 , 40.0 , 50.0 , 60.0  , 65.0             YENGN    1059
 .. 70.0 , 75.0  , 80.0 , 85.0 , 90.0 , 95.0 ,100.0  ,105.0             YENGN    1060
 ..110.0 /                                                              YENGN    1061
                                                                        YENGN    1062
  DATA                                                                  YENGN    1063
 . PNFTB10 / 55.0 , 80.0 , 90.0 , 97.5 , 105.0 , 110.0  /               YENGN    1064
 ..PNFTB11 / 60.0 , 80.0 ,105.0 ,110.0 /                                YENGN    1065
 ..PNFTB12 / 80.0 , 85.0 , 90.0 , 95.0 , 100.0, 102.5,105.0 /           YENGN    1066
 ..PNFTB13 / 0.0 , 24.0 , 30.0 , 40.0 , 50.0 , 55.0 , 60.0 , 65.0       YENGN    1067
 ..70.0 ,    75.0 , 80.0 , 85.0 , 90.0 , 95.0 ,100.0 ,105.0 ,110.0 /    YENGN    1068
 ..PNFTB14 / 24.0 , 70.0 , 75.0 , 80.0 , 82.5 , 85.0 , 87.5 , 88.5      YENGN    1069
 .. 90.0 ,    92.5 , 93.5 , 95.0 ,100.0 ,101.0 ,102.0 ,102.5 ,103.0     YENGN    1070
 ..104.0 ,  105.0 ,106.5 ,107.5 ,108.0 ,110.0 /                         YENGN    1071
 ..PNFTB15 / 24.0 , 80.0 , 90.0 , 92.5 , 94.5  /                        YENGN    1072
 ..PNFTB16 / 24.0 , 90.0 , 85.0 , 90.0 , 95.0  /                        YENGN    1073
 ..PNFTB17/24.0 , 30.0 , 35.0 , 40.0 , 45.0 , 50.0 , 60.0 , 70.0        YENGN    1074
 .. 80.0 , 90.0 ,100.0 ,105.0 ,110.0 /                                  YENGN    1075
 ..PNOTB   / 0.0 , 30.0   /                                             YENGN    1076
 ..DFT2TB /  .1 ,  .125 ,  .15  ,  .2   ,  .25  ,  .3   ,  .35          YENGN    1077
 ..    .4 ,  .45,  .5   ,  .55  ,  .6   ,  .7   ,  .8   ,  .9           YENGN    1078
 ..   1.0 ,  1.1 , 1.2  ,  1.3  ,  1.4  ,  1.5  ,  1.6  ,  1.7          YENGN    1079
 ..   1.8 ,  1.9 , 2.0  ,  2.1  ,  2.2  /                               YENGN    1080
                                                                        YENGN    1081
  DATA                                                                  YENGN    1082
 . TAMATB /  .625,  .7  ,  .7938,  .8625,  .8969,  .9313,  .9657        YENGN    1083
 ..   1.0 ,  1.025,1.05  ,  1.1    /                                    YENGN    1084
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      ..ALTAR  /     0.0  ,  5000. , 10000. , 15000. , 20000. , 30000.      YENGN     1085
      ., 40000. /                                                             YENGN     1086
      ..RMTBL   / 0.0 ,   .1 ,   .2 ,   .3 ,   .4 ,   .6 ,   .8 ,  1.0       YENGN     1087
      ., 1.2  /                                                               YENGN     1088
      ..DT2TBl /   .1 ,  .2 ,   .4 ,   .6 ,   .8 ,   .9 ,  1.0 ,  1.2 /     YENGN     1089
      ..ALTABl /     0.0 ,  5000. , 10000. , 15000. , 20000. , 30000.      YENGN     1090
      ., 40000. , 50000. /                                                    YENGN     1091
      ..TAMBTBl/   .7 ,   .8 ,   .9 ,   .956,  .989, 1.  ,  1.003, 1.02     YENGN     1092
      ., 1.1   /                                                              YENGN     1093
      ..RPMTBL / 27.0 , 35.0 , 90.0 , 100.0 /                                 YENGN     1094
                                                                               YENGN     1095
       DATA                                                                    YENGN     1096
      . RM     / 0.0 , 1.2 /                                                   YENGN     1097
      ..RM1    / 0.0 , 1.0 /                                                   YENGN     1098
      ..RMFGTB /  0.0 , .0756, .1512, .2 , .2268 , .3024 , .4 , .6 , .8       YENGN     1099
      .,  1.0  /                                                               YENGN     1100
      ..PNFTB18 /                                                              YENGN     1101
      .  0.0,    24.0 , 50.0 , 70.0 , 80.0 , 90.0 , 95.0 , 100.0 , 105.0    YENGN     1102
      .,  110.0  /                                                             YENGN     1103
      ..PNOZTB  / 0.0 , 10.0 , 20.0 , 55.0 , 60.0 , 81.0 , 90.0 , 98.5 /     YENGN     1104
      ..PNFTB19 / 40.0 , 30.0 , 60.0 , 70.0 , 80.0 , 90.0,100.0 ,105.0        YENGN     1105
      .,110.0 /                                                                YENGN     1106
      ..PRESTB  / 1.682, 2.72 , 4.364 , 6.754 , 8.294 , 10.11 , 12.23          YENGN     1107
      .,  14.596 /                                                             YENGN     1108
      ..PNFTB20  / 60.0 , 70.0 , 80.0 , 90.0 , 100.0 , 105.0 , 110.0 /        YENGN     1109
      ..PNOZTB1  /  0.0 , 10.0 , 20.0 /                                        YENGN     1110
       DATA                                                                    YENGN     1111
      . PNFTB21 /                                                              YENGN     1112
      . 0.0  ,     20.0 , 27.0 , 30.0 , 35.0 , 40.0 , 45.0 , 50.0 , 55.0     YENGN     1113
      ., 60.0 , 65.0 , 70.0 , 75.0 , 80.0 , 85.0 , 90.0 ,  95.0, 100.0        YENGN     1114
      .,105.0 ,110.0 /                                                         YENGN     1115
      ..PNOZTB2  /  0.0 , 55.0 , 60.0 , 70.0 , 81.0 , 98.0 /                   YENGN     1116
      ..RWTOTBL  /  0.0 , 20.0 /                                               YENGN     1117
      ..PNFTB22  / 70.0 , 80.0 /                                               YENGN     1118
      ..PKOPER / 1.0 /                                                         YENGN     1119
      ..IDEFFUEL / 1 /                                                         YENGN     1120
      ..XK4   / 1.0  /                                                         YENGN     1121
      ..XK3 / 1.0  /                                                           YENGN     1122
       DATA                                                                    YENGN     1123
      . WAFBL / 100.0,120.0,140.0,160.0,180.0,200.0,220.0,240.0,260.0         YENGN     1124
      ., 280.0,300.0,320.0,340.0,360.0,380.0,400.0,420.0,440.0,460.0          YENGN     1125
      ., 480.0,500.0/                                                          YENGN     1126
      ..RPSDT / .2 , .3,.4,.5,.6,.7,.8,.9, 1.0 /                               YENGN     1127
      ..VCASTBL / 0.0 , 150.0 , 175.0 , 200.0 , 225.0 , 250.0, 275.0,         YENGN     1128
      .          300.0 / ,                                                     YENGN     1129
      . HTBL     / 0.0 , 5000.0, 10000.0, 15000.0,20000.0,25000.0 ,           YENGN     1130
      .        30000.0 , 40000.0 /                                             YENGN     1131
                                                                               YENGN     1132
       DATA                                                                    YENGN     1133
      .NPTE1/17,10/,   NPTE2/21,7/,   NPTE3/5,4/,                              YENGN     1134
      .NPTE4/12,28/,   NPTE5/11,7/,   NPTE6/13,9/,                             YENGN     1135
      .NPTE7/8,8/,     NPTE8/11,8/,   NPTE9/8,9/,                              YENGN     1136
      .NPTE10/16,7/,   NPTE11/9,8/,   NPTE12/10,8/,                            YENGN     1137
      .NPTE13/7,11/,   NPTE14/21,9/,  NPTE15/20,6/,                            YENGN     1138
      .NPTE16/11,2/                                                            YENGN     1139
                                                                               YENGN     1140
       DATA                                                                    YENGN     1141
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            .BNDE1/0.,110.,0.,1./,             BNDE2/0.,110.,0.,1.2/,
            .BNDE3/40.,105./,                  BNDE4/55.,110./,
            .BNDE5/60.,110.,0.,1./,            BNDE6/80.,105./,
            .BNDE7/24.,94.5,0.,30./,           BNDE8/24.,95.,0.,30./,
            .BNDE9/24.,110.,0.,1.3/,           BNDE10/0.,110.,.1,2.2/,
            .BNDE11/.625,1.1,0.,40000./,       BNDE12/20.,75./,
            .BNDE13/0.,75./,                   BNDE14/0.,300.,0.,40000./,
            .BNDE15/24.,110.,.1,1.2/,          BNDE16/0.,50000.,.7,1.1/,
            .BNDE17/40.,110.,1.082,14.696/,    BNDE18/0.,110.,0.,98.5/,
            .BNDE20/0.,20.,70.,80./,           BNDE21/100.,500.,.2,1./,
            .BNDE22/0.,110.,0.,98./

             IF(INITIAL .EQ. 0) GO TO 100
             ISTART = 1
             DTO2 = DELT * 0.5
             IFUELOW= 0
             IRTNGD = 0
             PRWT = 0.0
             PKWF2  = 16.6
             TTIME = 0.
             HSAVE = H
             H = 0.0
             CALL ATMOS(1)
             H = HSAVE
             CALL ATMOS(1)
             IJPT = 0
         100 CONTINUE

       *     THROTTLE ANGLE SETTINGS IN DEGREES

       *    COMPUTE NON-STANDARD TEMPERATURE AND PRESSURE CORRECTIONS

             ATEMP = 1.0 + .2*RMACH**2.0
             TTO = TEMPHR*ATEMP
             ATT2 = TTO/518.688
             ASQRTT2 = ATT2**.5
             PTO = PRESHPI*ATEMP**3.5
             DELT0 = PTO/14.696
             THAMB = TEMPHP/518.688

       *    CORRECTION FOR MACH INPUTS

             RATIO = (30.0 - U)/30.0
             RATIO=AMIN1(1.,AMAX1(RATIO,0.))
             UP = U
             IF (U .LT. 0.0) UP = 0.0
             RMACHP = (UP/VS)*RATIO + RMACH*(1.0-RATIO)
       *                     HARRIER THROTTLE QUADRANT
             DTHR = PCTHR
             PSA = 0.55*DTHR + 20.0
             IF (DTHR .LE. 0.0)  PSA = .2*DTHR  + 20.0
             PSA=AMIN1(75.,AMAX1(PSA,0.))
```

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      *     INITIALIZATION-FIRST PASS THROUGH PROGRAM
            IF((INITIAL .EQ. 0) .A. (IRESET .NE. 0)) GO TO 120
      C***** CALCULATE FUEL REMAINING

            IF (IDFFUEL .NE. 0) GO TO 110
            PQFUEL = PQFUEL - PWFT*.000277*DELT
  110 CONTINUE
      *  PERCENT FUEL CALCULATION
            PCFUEL = 100.*PQFUEL / 7185.
            IF(PCFUEL .GT. 100.0) PCFUEL = 100.0

      C****  CHECK FOR FUEL LOW OR BINGO FUEL WARNING
            IF(PQFUEL .LE. FUELLOW) IFUELOW = 1
            IF(PQFUEL .LT. BINGO)  IBINGO = 1
            IF(INITIAL .EQ. 0) GO TO 120
      C***  RETURN TO MAIN PROGRAM AFTER OBTAINING FUEL WEIGHT


      ***   FIRST PASS CALCULATION OF PNFCOP AND PFG


            PNFRPM = 2.6*(PSA - 12.25)
            PNFRPM=AMIN1(90.,AMAX1(PNFRPM,0.))
            PNFCOR = PNFRPM/ASQRTT2
            CALL FSRCH(PNFCOR,PNFTB4,17,INF4,1)
            CALL FSRCH(RMACHP,RMFGTB,10,INMCH2,2)
            TEMPT(1)=PNFCOR
            TEMPT(2)=RMACHP
            PFGCOR = F2C(TEMPT,NPTE1,BNDE1,FGTAB(1))
            PFG   = PFGCOR*DELTD
            IF(INITIAL .EQ. 1) RETURN
  120 CONTINUE


      C***** CALCULATE RAM RECOVERY

      *        MACH NUMBER INDEX AND RATIO
            CALL FSRCH(PNFCUR,PNFTB1,21,INF1,1)
            CALL FCALC(RMACHP,PM,7,2)
            NP=F2C(TEMPT,NPTF2,BNDF2,NRTAB(1))
            DELTT2 = DELTD*NR
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C***** BLEED AIR CORRECTION FACTORS

*  COMPUTE ENGINE AIRFLOW - LBS/SEC
      CALL FSRCH (PNFCOR,PNFTB5,21,INF2,1)
      PWACOR = F2C(TEMPT,NPTF2,BNDF2,WATABU)
      PWA = (PWACOR * DELTT2) / ASQRTT2

****
*  COMPUTE REACTION CONTROL BLEED LEAKAGE -ADD TO TOTAL FROM RCS ROUTINE
****
      DWRCS =(PNOZPOS - 6.0)* .13333
      DWRCS = AMIN1(4.,AMAX1(DWRCS,0.))
*  FAN SPEED INPUT
      PNFRCS = (PNFRPM -24.0)* .014705
      PNFRCS = AMIN1(1.,AMAX1(PNFRCS,0.))
      DWRCS = DWRCS*PNFRCS*PKOPER
      RWTOT = RWTOT + DWRCS
      IF(RWTOT .GT. 0.0) GO TO 130
      PFGBLDC = 0.0
      PWFBLDC = 0.0
      PEGBLDC = 0.0
      PPHBLDC = 0.0
      GO TO 140
  130 CONTINUE

      CALL FSRCH (PNFCOR,PNFTB6,7,INF6,1)
      PFGBLDC = -F1B(PNFCOR,7,BNDE3,PFGABU) * RWTOT * ASQRTT2
*  COMPUTE BLEED CORRECTION FOR FUEL FLOW
      CALL FSRCH(PNFCOR,PNFTB10,6,INF10,1)
      PWFBLDC = F1B(PNFCOR,6,BNDF4,WFPCSU) * RWTOT * ASQRTT2
*  COMPUTE BLEED CORRECTION FOR JET PIPE TEMPERATURE
      CALL FSRCH(PNFCOR,PNFTB11,4,INF11,1)
      PEGBLDC = F1B(PNFCOR,4,BNDF5,EKRCSTU) * RWTOT * ASQRTT2 / DELTT2
*  COMPUTE BLEED CORRECTION FOR COMPRESSOR DISCHARGE PRESSURE
      CALL FSRCH(PNFCOR,PNFTB12,7,INF12,1)
      PPHBLDC = F1B(PNFCOR,7,BNDE6,PHRCSU) * RWTOT
  140 CONTINUE

*  WATER INJECTION SYSTEM

*  COMPUTE NOZZLE POSITION EFFECTS ON JET PIPE TEMPERATURE - DRY
      CALL FSRCH(PNFCOR,PNFTB15,5,INF15,1)
      CALL FCALC(PNOZPOS,PNOZA,4,2)
      TEMPT(1)=PNFCOR
      TEMPT(2)=PNOZPOS
      PENTMPD = F2C(TEMPT,NPTE3,BNDE7,EKNOZDU)
*  COMPUTE NOZZLE POSITION EFFECTS ON JET PIPE TEMPERATURE - WET
      CALL FSRCH(PNFCOR,PNFTB16,5,INF16,1)
      PENTMPW = F2C(TEMPT,NPTF3,BNDE8,EKNOZWU)
*  CHECK FOR WATER SWITCH ON
      IF(IWATER .EQ. 0) GO TO 160
      PWATNFC = 4.1
*  COMPUTE WATER INJECTION CORRECTION TO FUEL FLOW WHEN WATER SWITCH ON
      CALL FSRCH(PNFCOR,PNFTB13,17,INF13,1)
      PWWFC = F1B(PNFCOR,17,BNDF1,WFWIU)
*  WATER FLOWS IF POWER SPINDLE ANGLE GREATER THAN PSAW AND WATER AVAIL
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      IF(PSA .LE. PSAW .O. PWATER .LE. 0.0) GO TO 170
      IF(PBWI .LT. 1.) GO TO 150
      IF( IRESET.EQ.0 )  PWATER = PWATER - 5.833*DELT
      PWFGC = .9978
*  COMPUTE WATER INJECTION CORRECTION TO JET PIPE TEMPERATURE WHEN WATER
*  STARTS TO FLOW
      CALL FSRCH(PNFCOR,PNFTB14,23,INF14,1)
      PWFGIC = F1B(PNFCOR,23,BNDE9,EKWATRU)
*  NOZZLE POSITION CORRECTION - WET
      PWFGTNC = PENTMPW
      IWATFLO = 1
      GO TO 190
  150 PBWI = PBWI + 1.*DELT
      GO TO 180
  160 CONTINUE
      PWWFC = 0.0
      PWATNFC = 0.0
  170 CONTINUE
      PBWI    = 0.0
  180 PWFGC = 1.0
      PWEGTC = 0.0
*  NOZZLE POSITION CORRECTION - DRY
      PWEGTNC = PENTMPD
      IWATFLO = 0
  190 CONTINUE
C***** CALCULATE FUEL FLOW -STEADY STATE AND COMMAND
*  COMPUTE FUEL FLOW PARAMETER
      CALL FSRCH(PNFCOR,PNFTB3,12,INF3,1)
      CALL FSRCH(DELTT2,DET2TB,28,INFD,2)
      TEMPT(1)=PNFCOR
      TEMPT(2)=DELTT2
      PWFCOR = F2C(TEMPT,NPTE4,BNDE10,WFTABU)
*  COMPUTE AMBIENT CONDITIONS CORRECTION TO FUEL FLOW
      CALL FSRCH(THAMB,TAMBTB,11,ITAMB,1)
      CALL FSRCH(H ,ALTAB,7,INALT, 2)
      TEMPT(1)=THAMB
      TEMPT(2)=H
      WFKDAY = F2C(TEMPT,NPTE5,BNDE11,WFKDAYU)
*  COMPUTE MACH NO. CORRECTIONS TO FUEL FLOW
      CALL FSRCH(PNFCOR,PNFTB17,13,INF17,1)
      CALL FSRCH(RMACHP,RMTAB , 9,INMCH,2)
      TEMPT(1)=PNFCOR
      TEMPT(2)=RMACHP
      WFKMD = F2C(TEMPT,NPTE6,BNDE9,WFKMDU)
      PWFCOR1 = PWFCOR* WFKDAY * WFKMD  + PWFBLDC
*  COMPUTE STEADY STATE FUEL FLOW
      PWFSS =   PWFCOR1 * ASQRTT2
*  COMPUTE COMMANDED RPM
      CALL FSRCH(PSA,PNFCOMX,9,IPSA2,1)
      PNFCOM1 = F1B(PSA,9,BNDE12,NITABU)

*  NON - STANDARD DAY CORRECTION ABOVE RPMT

      IF(PNFCOM1 .GT. RPMT ) PNFCOM1 = PNFCOM1 + (TTO - 518.7)*0)*.020461
      IF(PNFCOM1 .GT. 103.5) PNFCOM1 = 103.5
      PNFCOM1 = PNFCOM1  + PWATNFC
*  RESET DUE TO BLEED FLOW - RPM
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      PNFCOM1 = PNFCOM1  - .089*RWTOT
      IF(PNFCOM1 .GT. 107.0) PNFCOM1 = 107.0
      CALL FSRCH (PSA,PNFCOM2,13,IPSA3,1)
      PWFCUM = F1A(PSA,13,BNDE13,WFCTAB)
      PWFCOM = PWFCOM + PWWFC
      PWFLIM = 1230.

*  ENGINE OUT LOGIC

      IOUT = 0
      SUCAL = COSBET*COSALP*SVCAL
      IF(POFUEL .GT. 0.0 .A. IENGFO .EQ. 0 .A. PCTHR .GT.-50.)GO TO
     .200
      IOUT =1
      CALL FSRCH(SUCAL,VCASTBL,8,IVCAS,1)
      CALL FSRCH( H    ,HTBL    ,8,IHTBL,2)
      TEMPT(1)=SUCAL
      TEMPT(2)=H
      PNFCOM1 = F2C(TEMPT,NPTE7,BNDE14,WNOMLLU)
      PWFCOM = PWFSS + (PNFCOM1 - PNFRPM)*PK5*DFLT
      PWFLIM = 0.0
  200 CONTINUE
      WFMAX = PWFCOM
      IF(PNFRPM.LT.(PNFCOM1 -2.0)) GO TO 210
      WFMAX = PWFSS +(PNFCOM1 - PNFRPM)*PK5*DFLT
  210 CONTINUE
      IF(PWFCOM.GT.WFMAX) PWFCOM = WFMAX
*  LIMIT FUEL FLOW TO MAX AND MIN VALUES
      PWFCOM = AMIN1(20000.,AMAX1(PWFCOM,PWFLIM))
      PTEMP = (PWFCOM - PWFSS)*PKWF1*DFLT

******CALCULATE FUEL FLOW ACCEL AND DECEL LIMITS

      PKACCEL = PNFRPM
      IF(PKACCEL .LT. 1.0) PKACCEL = 1.0
      PWFACEL = PKWF2*PKACCEL*DFLTT2

*     SET HIGH TEMPERATURE TRIMBACK FLAG


*  ENGINE LIMITER VALUES

      IF(TTC .LT. 1550.0) TLIM1 = 1590.0
      IF(TTC .LT. 1722.) TLIM2 = 1762.0
      IF(TTC .LT. 1783.)TLIM3 = 1823.0
      IF(PNFCOR.LT. 100.5) PNFLIM = 101.0
      IF(PCDP .LT. 250.0) PCDPLIM = 255.0
      JPTK =0
      JPTC = 0
      IF( TLIMOFF.NE.0 )  GO TO 260
      IF (PNOZPOS .GT. 16.0 .O. DNGEAR .GT. 0.9) GO TO 220
*  MAXIMUM THRUST LIMITS
      IF(TTC .LT. TLIM1) GO TO 250
      TLIM1 = 1550.0
      JPTK =1
      IF(TTC .GE. 1590.)  JPTC = 1
      OPLIM = (1590.0 - TTC) * PK1 * DELT
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            GO TO 240                                                    YENGN     1427
        220 CONTINUE                                                     YENGN     1428
            IF(IWATFLO .EQ. 1) GO TO 230                                 YENGN     1429
      *  SHORT LIFT LIMIT - DRY                                          YENGN     1430
            IF(TTC .LT. TLIM2) GO TO 250                                 YENGN     1431
            TLIM2 = 1722.0                                               YENGN     1432
            IF(TTC .GE. 1762.)  JPTC = 1                                 YENGN     1433
            JPTK =1                                                      YENGN     1434
            DPLIM = (1762. - TTC) * PK1 + DELT                           YENGN     1435
            GO TO 240                                                    YENGN     1436
        230 CONTINUE                                                     YENGN     1437
      *  SHORT LIFT LIMIT - WET                                          YENGN     1438
            IF(TTC .LT. TLIM3 ) GO TO 250                                YENGN     1439
            TLIM3 = 1783.0                                               YENGN     1440
            JPTK =1                                                      YENGN     1441
            IF(TTC .GE. 1823.) JPTC =  1                                 YENGN     1442
            DPLIM = (1423.0 - TTC)* PK1 *DELT                            YENGN     1443
        240 CONTINUE                                                     YENGN     1444
            IF(DPLIM .LT. PWFACEL) PWFACEL = DPLIM                       YENGN     1445
        250 CONTINUE                                                     YENGN     1446
            IF( H .LT. 10000.) GO TO 260                                 YENGN     1447
            IF(PNFCOR.LT. PNFLIM) GO TO 260                              YENGN     1448
            PNFLIM = 100.5                                               YENGN     1449
            DPLIM = (101.0 - PNFCOR)*PK2*DELT                            YENGN     1450
            IF (DPLIM .LT. PWFACEL) PWFACEL = DPLIM                      YENGN     1451
        260 CONTINUE                                                     YENGN     1452
            PCDP  =  PPH - PRESHPI                                       YENGN     1453
            IF(PCDP .LT. PCDPLIM) GO TO 270                              YENGN     1454
            PCDPLIM = 250.0                                              YENGN     1455
            DPLIM = (255. - PCDP)*PK6*DELT                               YENGN     1456
            IF( DPLIM.LT.PWFACEL )  PWFACEL = DPLIM                      YENGN     1457
        270 PWFDCEL  =  - PKWF2*PNFRPM*DELTT2                            YENGN     1458
            PTEMP = AMIN1(PWFACEL,AMAX1(PTEMP,PWFDCEL))                  YENGN     1459
                                                                         YENGN     1460
      C***** CALCULATE ENGINE RESPONSE                                   YENGN     1461
                                                                         YENGN     1462
            CALL FSRCH(100.0 ,PNFTB4,17,INF4,1)                          YENGN     1463
            CALL FSRCH(RMACHP,RMFGTB,10,INMCH1,2)                        YENGN     1464
            TEMPT(1)=100.                                                YENGN     1465
            TEMPT(2)=RMACHP                                              YENGN     1466
            PFGMAX = F2C(TEMPT,NPTE1,RNDEL,FGTABU)*DELTT2                YENGN     1467
            FGDFGM = (PFG/PFGMAX)*100.                                   YENGN     1468
            TZERO = F1A (FGDFGM,NPTD,RTD,TDPTS)                          YENGN     1469
            PDFTSS = PTEMP                                               YENGN     1470
            PWFT  =  PTEMP + PWFSS                                       YENGN     1471
            IF(IOUT .EQ. 1) PWFT = 0.0                                   YENGN     1472
            PDELNFA = -.000015625*H+1.                                   YENGN     1473
            CALL FSRCH(PNFRPM,RPMTBL,NRPMTBL,IRPMT,1)                    YENGN     1474
            PK3 = F1B(PNFRPM,NRPMTBL,RPMTBL,PK3PT)                       YENGN     1475
            PDELNF = PDFTSS*PK3*PDELNFA                                  YENGN     1476
            PSYM = TZERO + DELT + PDELNFA                                YENGN     1477
            PDELNF = AMIN1(PSYM,AMAX1(PDELNF,-PSYM))                     YENGN     1478
                                                                         YENGN     1479
      C***** UPDATE ENGINE LOW PRESSURE FAN SPEED                        YENGN     1480
                                                                         YENGN     1481
            PNFRPM = PNFRPM + PDELNF                                     YENGN     1482
            PNFCOR = PNFRPM/ASQRTT2                                      YENGN     1483
```

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                                                                      YENGN  1484
                                                                      YENGN  1485
                                                                      YENGN  1486
                                                                      YENGN  1487
                                                                      YENGN  1488
                                                                      YENGN  1489
*           GROSS THRUST                                              YENGN  1490
                                                                      YENGN  1491
      CALL FSRCH(PNFCOR,PNFTB4,17,INF4,1)                             YENGN  1492
      CALL FSRCH(RMACHP,RMFGTB,10,INMCH1,2)                           YENGN  1493
      TEMPT(1)=PNFCOR                                                 YENGN  1494
      TEMPT(2)=RMACHP                                                 YENGN  1495
      PFGCOR = F2C(TEMPT,NPTF1,BNDE1,FGTABU)                          YENGN  1496
                                                                      YENGN  1497
                                                                      YENGN  1498
                                                                      YENGN  1499
                                                                      YENGN  1500
*             E G T                                                   YENGN  1501
                                                                      YENGN  1502
*  COMPUTE JET PIPE TEMPERATURE PARAMETER                             YENGN  1503
      CALL FSRCH(PNFCOR,PNFTB2,11,INF5,1)                             YENGN  1504
      CALL FSRCH(DELTT2,DT2TB1, 8,INFD1,2)                            YENGN  1505
      TEMPT(1)=PNFCOR                                                 YENGN  1506
      TEMPT(2)=DELTT2                                                 YENGN  1507
      PEGTCOR = F2C(TEMPT,NPTE8,BNDE15,EGTABU)                        YENGN  1508
*  COMPUTE AMBIENT CONDITION CORRECTION TO JPT PARAMETER              YENGN  1509
      CALL FSRCH(H     ,ALTAB1, 8,INALT1,1)                           YENGN  1510
      CALL FSRCH(THAMB ,TAMBTB1,9,ITAMB1,2)                           YENGN  1511
      TEMPT(1)=H                                                      YENGN  1512
      TEMPT(2)=THAMB                                                  YENGN  1513
      EGKDAY = F2C(TEMPT,NPTE9,BNDE16,FGKDAYU)                        YENGN  1514
*  COMPUTE MACH NO. CORRECTION TO JPT PARAMETER                       YENGN  1515
      CALL FSRCH(PNFCOR,PNFTB2 ,11,INF5 ,1)                           YENGN  1516
      CALL FCALC(RMACHP,RM,7,2)                                       YENGN  1517
      TEMPT(1)=PNFCOR                                                 YENGN  1518
      TEMPT(2)=RMACHP                                                 YENGN  1519
      EGKMO = F2C(TEMPT,NPTE5,BNDE9,EGKMOU)                           YENGN  1520
                                                                      YENGN  1521
                                                                      YENGN  1522
*           COMP DISCH PRES RATIO                                     YENGN  1523
                                                                      YENGN  1524
      CALL FSRCH(PNFCOR,PNFTB8,16,IN21,1)                             YENGN  1525
      PPHCOR = F2C(TEMPT,NPTE10,BNDE2,PHTABU)                         YENGN  1526
                                                                      YENGN  1527
*           COMP DISCH TEMP RATIO                                     YENGN  1528
                                                                      YENGN  1529
      PTBCOR = F2C(TEMPT,NPTE10,BNDE2,TBTABU)                         YENGN  1530
                                                                      YENGN  1531
C***** CALCULATE RAM DRAG - CORRECT GROSS THRUST, JET PIPE            YENGN  1532
*      TEMPERATURE,PRESSURE RATIO AND COMPRESSOR DISCHG. TEMPERATURE  YENGN  1533
*      FOR ALTITUDE                                                   YENGN  1534
                                                                      YENGN  1535
*  COMPUTE ALTITUDE CORRECTION TO GROSS THRUST PARAMETER              YENGN  1536
                                                                      YENGN  1537
      CALL FSRCH (PNFCOR,PNFTB19,9,INF19,1)                           YENGN  1538
      CALL FSRCH (PRESHPT,PRESTB,8,IPRES,2)                           YENGN  1539
      TEMPT(2)=PRESHPT                                                YENGN  1540
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      FKALT = F2C(TEMPT,NPTE11,ANDE17,FKALTU)
*     COMPUTE SPLAY ANGLE CORRECTION

      CALL FSRCH(PNFCOR,PNFT81B,10,INFIA,1)
      CALL FSRCH(PNOZPOS,PNOZTB,8,INDZ1,2)
      TEMPT(2)=PNOZPIS
      PKSPLAY = F2C(TEMPT,NPTE12,BNDF1A,FSPLAYU)
      PFG = (PFGCOR + PWFGC + PFGBLDC) + PKSPLAY + FKALT
      IF(PFG .LT. 0.0) PFG = 0.0
*  TOTAL EGT - RANKINE
      PEGTCOR = PEGTCOR + EGKDAY + EGKMO - PWFGINC - PWEGTC + PFGBLOC
      PEGTD  =  PEGTCOR + ATT2

*        RAMP UNCORRECTED EGT TO TABLE VALUE

      IF(IOUT .EQ. 1) PEGTD  = TTO
      PEGT = (PEGTD - PEGTP) * PK4 * DELT + PEGTP
*  EGT - DEGREES CELSIUS
      PEGTC = 0.555 * (PEGT - 491.69  )
      PPH = PPHCOR*DELTT2 - PPHBLDC - 15.0
      PTBLD = PTBCOR*ATT2


*     THERMOCOUPLE TEMPERATURE LIMIT WARNING


*                    INITIALIZE

      IF( ISTART.EQ.0 )  GO TO 280
      ISTART = 0
      PEGT = PEGTD
      PSAP = PSA
      TTC = PEGT
      TW = PEGT
      PEGT1 = PEGT
      PEGT2 = PEGT
  280 CONTINUE

      PSARA = (PSA - PSAP) / DELT
      PSAP = PSA
      PEGTP = PEGT

*       DETERMINE THROTTLE SLAM

*  GO AROUND SLAM LOGIC IF DOING ENGINE START
      IF(PNFRPM .LT. 20.) PSAP = PSARA = 0.0
      IF (PSAR .LE. 5.0 .A. PSARA .LE. 5.0) GO TO 320
      IF (PSARA .GT. PSAR) PSAR = PSARA

*        RAMP OUT DELT EGT IF RPM = RPM COMMANDED

      IF (PNFRPM .GE. PNFCOM1 - XK1) GO TO 300
      IF (PSAR .LE. 100.0) GO TO 290
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      *       ADD 135 DEGREES R IF LARGE SLAM                               YENGN    1598
                                                                            YENGN    1599
            PEGT = PEGT + 135.0                                             YENGN    1600
            IF(JPTK .EQ. 1) PSAR = 0                                        YENGN    1601
            GO TO 320                                                       YENGN    1602
        290 CONTINUE                                                        YENGN    1603
                                                                            YENGN    1604
      *       RAMP IN DELT EGT FOR SMALL SLAM                               YENGN    1605
                                                                            YENGN    1606
            PEGT = PEGT + (135.0 * ( PSAR - 5.0) * .01052)                  YENGN    1607
            IF(JPTK .EQ. 1) PSAR = 0                                        YENGN    1608
            GO TO 320                                                       YENGN    1609
        300 CONTINUE                                                        YENGN    1610
                                                                            YENGN    1611
      *       RAMP OUT DELT EGT                                             YENGN    1612
                                                                            YENGN    1613
            TEMP = PNECOM1 - XK1 - PNERPM + XK2                             YENGN    1614
            TEMP = AMIN1(XK2,AMAX1(TEMP,0.))                                YENGN    1615
            IF (PSAR .GE. 100.0) GO TO 310                                  YENGN    1616
            PEGT = PEGT + (135.0 * (TEMP / XK2) * (PSAR - 5.0) * 0.01052)   YENGN    1617
            PSAR = PSAR + (TEMP / XK2)                                      YENGN    1618
            GO TO 320                                                       YENGN    1619
        310 PEGT = PEGT + (135.0 * (TEMP/XK2))                              YENGN    1620
            PSAR = PSAR + (TEMP / XK2)                                      YENGN    1621
        320 CONTINUE                                                        YENGN    1622
                                                                            YENGN    1623
            DELPEGT = PEGT - PEGTT                                          YENGN    1624
            TEMP = DELPEGT * 0.5                                            YENGN    1625
                                                                            YENGN    1626
                                                                            YENGN    1627
                                                                            YENGN    1628
      *        CALCULATE THERMOCOUPLE TEMPERATURE                           YENGN    1629
                                                                            YENGN    1630
                                                                            YENGN    1631
            DELTW = ( TEMP + PEGTT - TW ) * 0.11 * DELT                     YENGN    1632
     .          / ( 1.0 + 0.1)*DTD2 )                                       YENGN    1633
     .      DELTTC = (DELT / (1.0 + 1.6*DTD2))                              YENGN    1634
     .          * (1.023 * (PEGTT - TTC + TEMP)                             YENGN    1635
     .          -0.577 * (TTC - TW - (DELTW * 0.5)))                        YENGN    1636
            TW = TW + DELTW                                                 YENGN    1637
            TTC = TTC + DELTTC                                              YENGN    1638
            PEGTT = PEGT                                                    YENGN    1639
            TTCC = (TTC - 491.69) * 0.555                                   YENGN    1640
                                                                            YENGN    1641
            IF(TTC .GT. 1885.0 .A. IWATFLO .EQ.0) IJPT = 1                  YENGN    1642
            IF(TTC .GT. 1903.0 .A. IWATFLO .EQ. 1) IJPT = 1                 YENGN    1643
                                                                            YENGN    1644
                                                                            YENGN    1645
      C***    CALCULATE THRUST FORCES AND MOMENTS                           YENGN    1646
                                                                            YENGN    1647
      C    ANGLE TO ENGINE AXIS                                             YENGN    1648
            PNOZP = (PNOZPOS + 1.5) * DTOR                                  YENGN    1649
            PSINPJ = SIN(PNOZP)                                             YENGN    1650
            PCOSPJ = COS(PNOZP)                                             YENGN    1651
      *   RAM DRAG                                                          YENGN    1652
            PRAM = PWA*VT/G                                                 YENGN    1653
      *   SCRUB DRAG                                                        YENGN    1654
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          CALL FSRCH (PNFCOR,PNFTB20,7,INF20,1)                                  YENGN    1655
          CALL FCALC (RMACHP,PM1,11,2)                                           YENGN    1656
          TEMPT(1)=PNFCOR                                                        YENGN    1657
          TEMPT(2)=RMACHP                                                        YENGN    1658
          PSDU = F2C(TEMPT,NPTE13,BNDF5,DSCRUBU)                                 YENGN    1659
*    COMPUTE NOZZLE EFFECTS ON SCRUB DRAG                                        YENGN    1660
          CALL FSRCH (PNOZPOS,PNOZTB1,3,INOZ2,1)                                 YENGN    1661
          FKSCRUB = F1B(PNOZPOS,3,BNDE20,FKSCRBU)                                YENGN    1662
          PSD = PSDU * FKSCRUB * DELTT2                                          YENGN    1663
*    BOUNDARY LAYER  AND INLET DRAG                                              YENGN    1664
          CALL FSRCH(PWACOR,WATBL,21,IWATBL,1)                                   YENGN    1665
          CALL FSRCH(RMACHP,RPSDT, 9,IRPSDT,2)                                   YENGN    1666
          TEMPT(1)=PWACOR                                                        YENGN    1667
          PBLI = F2C(TEMPT,NPTE14,BNDE21,PBLIU) * DELTT2                         YENGN    1668
*    COMPUTE AXIAL FORCE                                                         YENGN    1669
          FTX=PFG*PCOSPJ-PSD*PCOSPJ-PBLI*COSBET*COSALP                           YENGN    1670
*    COMPUTE NORMAL FORCE                                                        YENGN    1671
          FTZ=-PFG*PSINPJ+PSD*PSINPJ-PBLI*COSBET*SINALP                          YENGN    1672
*    COMPUTE SIDE FORCE                                                          YENGN    1673
          FTY=-PBLI*SINBET                                                       YENGN    1674
******                                                                           YENGN    1675
                                                                                 YENGN    1676
*    COMPUTE THRUST CENTERLINE AND WATERLINE                                     YENGN    1677
                                                                                 YENGN    1678
          CALL FSRCH (PNFCOR,PNFTB21,20,INF21,1)                                 YENGN    1679
          CALL FSRCH (PNOZPOS,PNOZTB2,6,INOZ3,2)                                 YENGN    1680
          TEMPT(1)=PNFCOR                                                        YENGN    1681
          TEMPT(2)=PNOZPOS                                                       YENGN    1682
          TCF = F2C(TEMPT,NPTE15,BNDE22,TCFSU)                                   YENGN    1683
*    RCS CORRECTION                                                              YENGN    1684
          CALL FCALC (RWTOT ,RWTOTBL,11,1)                                       YENGN    1685
          CALL FSRCH (PNFCOR,PNFTB22, 2,INF22,2)                                 YENGN    1686
          TEMPT(1)=RWTOT                                                         YENGN    1687
          TEMPT(2)=PNFCOR                                                        YENGN    1688
          TCRCS = F2C(TEMPT,NPTE16,BNDE20,FSRCSU)                                YENGN    1689
          TCFS = TCF +TCRCS + DTCFS                                              YENGN    1690
          CALL FSRCH (PNFCOR,PNFTB21,20,INF21,1)                                 YENGN    1691
          TCWL = F1B(PNFCOR,20,BNDE1,TCWLU)                                      YENGN    1692
*    COMPUTE PITCHING MOMENT DUE TO PROPULSIVE FORCE                             YENGN    1693
******                                                                           YENGN    1694
          TEMPP = ((346.6 - TCFS)/12.0)*PSINPJ  + ((96.0 - TCWL)/12.0)*          YENGN    1695
     .PCOSPJ                                                                     YENGN    1696
          PMP = PFG*TEMPP                                                        YENGN    1697
*    COMPUTE TOTAL PITCHING MOMENT                                               YENGN    1698
          THM = PMP - FTZ*((CGFS-346.6)/12.) + FTX*((CGWL-96.0)/12.)             YENGN    1699
*    COMPUTE TOTAL  ROLLING MOMENT                                               YENGN    1700
          THL = -FTZ*CGBL/12. - FTY*((CGWL - 96.0)/12.0)                         YENGN    1701
*    COMPUTE TOTAL  YAWING MOMENT                                                YENGN    1702
          THN = FTX*CGBL/12. + FTY*((CGFS-346.6)/12.)                            YENGN    1703
******                                                                           YENGN    1704
                                                                                 YENGN    1705
*    COMPUTE MOMENTS DUE TO INLET MASS FLOW AND RAM DRAG                         YENGN    1706
                                                                                 YENGN    1707
***** PITCHING MOMENT                                                            YENGN    1708
                                                                                 YENGN    1709
          PMDOT     = PWA/G                                                      YENGN    1710
          TEM =(CGFS - 220.63)/12.                                               YENGN    1711
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      TEM1 =(CGWL - 90.77)/12.
      TEM2 = (27.0 - CGBL)/12.
      TEMSQ = TEM*TEM
      TEM1SQ = TEM1*TEM1
      TEM2SQ = TEM2*TEM2
      PHINLTT= -PMDOT*Q*(TEMSQ + TEM1SQ)
***** ROLLING MOMENT
      RLINLTT= -PMDOT*P*(TEM1SQ + TEM2SQ) + PMDOT*R*(TEM + TEM1)
***** YAWING  MOMENT
      YMINLTT = PMDOT*P*(TEM + TEM1) - PMDOT*R*(TEMSQ + TEM2SQ)
      YMINLTT = YMINLTT*XK4
*
* COMPUTE MOMENTS DUE TO RAM DRAG
*
      THMRD= PRAM*COSBET*((SINALP*(CGFS-220.63)/12.)
     .+(COSALP*(90.77-CGWL)/12.))
      THLRD= PRAM*((SINBET*(CGWL-90.77)/12.)-(COSBET*SINALP*CGBL/12.))
      THNRD= PRAM*((COSBET*COSALP*CGBL/12.)+(SINBET*(220.63-CGFS)/12.))
      THNRD= THNRD*XK3
*****
*  ADD INLET AND RAM DRAG MOMENTS TO BASIC ENGINE MOMENTS
*****
*  TOTAL PITCHING MOMENT
      THM   = THM + PHINLTT + THMRD
*  TOTAL ROLLING  MOMENT
      THL   = THL + RLINLTT + THLRD
*  TOTAL YAWING  MOMENT
      THN   = THN + YMINLTT + THNRD
*  ADD REACTION CONTROL FORCES AND MOMENTS
      FTX   = FTX + RFTX
      FTY   = FTY + RFTY
      FTZ   = FTZ + RFTZ
      THL   = THL + RMR
      THM   = THM + RMP
      THN   = THN + RMY
*****
*  COMPUTE INLET FORCES DUE TO ANGULAR MOMENTUM AND RAM DRAG
*****
      FXINLT=-PMDOT*Q*TEM1-PRAM*COSBET*COSALP
      FYINLT=PMDOT*P*TEM1-PMDOT*R*TEM-PRAM*SINBET
      FZINLT=PMDOT*Q*TEM-PRAM*COSBET*SINALP
      FTX = FTX + FXINLT
      FTY = FTY + FYINLT
      FTZ = FTZ + FZINLT
C*****  UPDATE  NOZZLE DEFLECTION ANGLE
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      SUBROUTINE ENGO8       74/175  OPT=2                          FTN 4.9+536       82/10/22. 15.12.43       PAGE    19

                                                                                       YENGN       1769
                      PNOZCD = 0.965 * PCNOZ + 2.                                      YENGN       1770
                      DNOZ = PNOZCD - PNOZPOS                                          YENGN       1771
  1030                TEMPE = 98.5*DELT                                                YENGN       1772
                      DNOZ = AMIN1(TEMPE,AMAX1(DNOZ,-TEMPE))                           YENGN       1773
                      PNOZPOS = PNOZPOS + DNOZ                                         YENGN       1774
                      PNOZPOS = AMIN1(98.5,AMAX1(PNOZPOS,2.))                          YENGN       1775
                                                                                       YENGN       1776
  1035          C*****  UPDATE ENGINE RPM                                              YENGN       1777
                                                                                       YENGN       1778
                      RPM = PNFRPM                                                     YENGN       1779
                                                                                       YENGN       1780
                      RETURN                                                           YENGN       1781
  1040                END                                                              YENGN       1782


      SYMBOLIC REFERENCE MAP (R=2)

 ENTRY POINTS       DEF LINE       REFERENCES
    1  ENGO8            1           497        1039

 VARIABLES       SN  TYPE                RELOCATION
  1750  A            REAL         ARRAY     FARRAY     REFS         77       8*84     11*93     3*105     14*109    10*124    11*135
                                                             14*147     10*162    13*173    12*187     5*200      5*206       230
  3217  ALTAB        REAL         ARRAY                REFS        230        605   DEFINED       340
  3247  ALTAB1       REAL         ARRAY                REFS        247        768   DEFINED       340
  2240  ASORTT2      REAL                   FARRAY     REFS         93        490       519       541        544        547       617
                                                                741   DEFINED        439
  2431  ATEMP        REAL                              REFS        437        440   DEFINED       436
  2237  ATT2         REAL                   FARRAY     REFS         93        439       810       819    DEFINED        438
  3371  BINGO        REAL                   FARRAY     REFS        135        476   DEFINED       271
  3521  BNDF1        REAL         ARRAY                REFS        258        495       569       725        754        950
                                                            DEFINED        399
  3557  BNDE10       REAL         ARRAY                REFS        258        602   DEFINED       399
  3563  BNDE11       REAL         ARRAY                REFS        258        608   DEFINED       399
  3567  BNDE12       REAL         ARRAY                REFS        258        620   DEFINED       399
  3571  BNDE13       REAL         ARRAY                REFS        258        631   DEFINED       399
  3573  BNDE14       REAL         ARRAY                REFS        258        646   DEFINED       399
  3577  BNDE15       REAL         ARRAY                REFS        258        766   DEFINED       399
  3603  BNDF16       REAL         ARRAY                REFS        258        772   DEFINED       399
  3607  BNDE17       REAL         ARRAY                REFS        258        799   DEFINED       399
  3613  BNDF18       REAL         ARRAY                REFS        258        805   DEFINED       399
  3525  BNDE2        REAL         ARRAY                REFS        258        509       518       784        788
                                                            DEFINED        399
  3617  BNDE20       REAL         ARRAY                REFS        258        920       947   DEFINED        399
  3623  BNDE21       REAL         ARRAY                REFS        258        926   DEFINED       399
  3627  BNDE22       REAL         ARRAY                REFS        258        941   DEFINED       399
  3531  BNDF3        REAL         ARRAY                REFS        258        541   DEFINED       399
  3533  BNDE4        REAL         ARRAY                REFS        258        544   DEFINED       399
  3535  BNDE5        REAL         ARRAY                REFS        258        547       917   DEFINED        399
  3541  BNDF6        REAL         ARRAY                REFS        258        550   DEFINED       399
  3543  BNDE7        REAL         ARRAY                REFS        258        560   DEFINED       399
  3547  BNDE8        REAL         ARRAY                REFS        258        563   DEFINED       399
  3653  BNDF9        REAL         ARRAY                REFS        258        578       614       779    DEFINED        399
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       SUBROUTINE ENGOH        74/175  OPT=2                        FTN 4.8+539        82/10/22. 15.12.43         PAGE     20

VARIABLES        SN   TYPE            RELOCATION
 2577  BRPMTRL        REAL       ARRAY                 REFS        230        733   DEFINED      271
 2601  BTO            REAL       ARRAY                 REFS        230        727   DEFINED      271
 2345  CGBL           REAL                 FARRAY      REFS        105        959       961      971        986        987
 2344  CGFS           REAL                 FARRAY      REFS        105        957       961      969        984        987
 2346  CGWL           REAL                 FARRAY      REFS        105        957       959      973        984        986
 2137  COSALP         REAL                 FARRAY      REFS         84        638       928      984        987       1015
 2141  COSBET         REAL                 FARRAY      REFS         93        638       928      933        984        986        987
                                                       1015       1017
 2535  DELPEGT        REAL                             REFS        883    DEFINED       882
  166  DFLT           REAL                 FARRAY      REFS         77        415       465      573        593        547        652
                                                        657        694        693       701      708        714        735        815
                                                        840        890        892      1030
 2230  DELTO          REAL                 FARRAY      REFS         93        496       510   DEFINED       441
 2537  DELTTC         REAL                             REFS        896    DEFINED       892
 3341  DELTT2         REAL                 FARRAY      REFS        124        519       547      593        601        663        716
                                                        725        763        765       818      921        926
                                                    DEFINED        510
 2536  DELTW          REAL                             REFS        892        895   DEFINED      890
 3146  DET2TB         REAL       ARRAY                 REFS        230        599   DEFINED      321
 3532  DNGEAR         REAL                 FARRAY      REFS        206        678
 2575  DNOZ           REAL                             REFS       1031       1032   DEFINED     1029       1031
 2506  DPLIM          REAL                             REFS      2*703      2*709     2*715   DEFINED      634        693        701
                                                        708        714
 2126  DSCRUBU        REAL       ARRAY     EGDARRY     REFS         64        217       917
 3537  DTCFS          REAL                 FARRAY      REFS        296        948
 3337  DTHR           REAL                 FARRAY      REFS        124        453     2*454   DEFINED      452
  132  DTOR           REAL                 FARRAY      REFS         77        907
 2426  DTO2           REAL                             REFS        890        892   DEFINED      415
 3237  DT2TB1         REAL       ARRAY                 REFS        242        763   DEFINED      340
 3465  DWRCS          REAL                 FARRAY      REFS        187        525       529      530    DEFINED        524        525
                                                        529
    0  EGD            REAL       ARRAY     EGDARRY     REFS         59       32*64
 2521  EGKDAY         REAL                             REFS        809    DEFINED       772
 3070  EGKDAYU        REAL       ARRAY     EGDARRY     REFS         64        217       772
 2522  EGKMO          REAL                             REFS        809    DEFINED       778
 3250  EGKMOU         REAL       ARRAY     EGDARRY     REFS         64        217       778
 2740  EGTABU         REAL       ARRAY     EGDARRY     REFS         64        217       766
 3200  EKNOZDU        REAL       ARRAY     EGDARRY     REFS         64        217       560
 3224  EKNOZWU        REAL       ARRAY     EGDARRY     REFS         64        217       563
 3414  EKRCSTU        REAL       ARRAY     EGDARRY     REFS         64        217       547
 3365  EKWATRU        REAL       ARRAY     EGDARRY     REFS         64        217       578
    0  F              REAL       ARRAY     FARRAY      REFS         58       6*77
 3470  FGOFGM         REAL                 FARRAY      REFS        187        727   DEFINED      726
 1645  FGTABU         REAL       ARRAY     EGDARRY     REFS         64        217       495      725        754
 3340  FKALT          REAL                 FARRAY      REFS        124        806   DEFINED      799
 2510  FKALTU         REAL       ARRAY     EGDARRY     REFS         64        217       799
 2505  FKSCRBU        REAL       ARRAY     EGDARRY     REFS         64        217       920
 2546  FKSCRUB        REAL                             REFS        921    DEFINED       920
 2620  FSPLAYU        REAL       ARRAY     EGDARRY     REFS         64        217       805
 2243  FSRCSU         REAL       ARRAY     EGDARRY     REFS         64        217       947
 3326  FTX            REAL                 FARRAY      REFS        109        957       951     1003       1019
                                                    DEFINED        928       1003      1019
 3327  FTY            REAL                 FARRAY      REFS        109        959       961     1004       1020
                                                    DEFINED        932       1004      1020
 3330  FTZ            REAL                 FARRAY      REFS        109        957       959     1005       1021
                                                    DEFINED        930       1005      1021
 3372  FUELLOW        REAL                 FARRAY      REFS        135        475   DEFINED      271
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      SUBROUTINE ENG08      74/175  OPT=2                              FTN 4.8+538       82/10/22. 15.12.43      PAGE    21

 VARIABLES      SN  TYPE          RELOCATION
   2571  FXINLT     REAL                         REFS      1019    DEFINED    1015
   2572  FYINLT     REAL                         REFS      1020    DEFINED    1016
   2573  FZINLT     REAL                         REFS      1021    DEFINED    1017
    143  G          REAL               FARRAY    REFS        77        911     968
   1762  H          REAL               FARRAY    REFS        84        421     605     607     643     645     705
                                                  731       768        770  DEFINED     422     424
   2430  HSAVE      REAL                         REFS       424    DEFINED     421
   3451  HTBL       REAL       ARRAY             REFS       242        643  DEFINED     331
   3443  IAINGO     INTEGER            FARRAY    REFS       173    DEFINED     417     476
   3364  IDEFUEL    INTEGER            FARRAY    REFS       135        464  DEFINED     369
   3446  IENGFO     INTEGER            FARRAY    REFS       173        639
   3444  IFUFLOW    INTEGER            FARRAY    REFS       173    DEFINED     416     475
   2475  IHTBL    * INTEGER                      REFS       643
   3522  IJPT       INTEGER            FARRAY    REFS       200    DEFINED     426     900     901
   3521  ILIMOFF    INTEGER            FARRAY    REFS       200        677
   2464  INALT    * INTEGER                      REFS       605
   2517  INALT1   * INTEGER                      REFS       768
   2462  INFD     * INTEGER                      REFS       599
   2516  INFD1    * INTEGER                      REFS       763
   2440  INF1     * INTEGER                      REFS       507
   2444  INF10    * INTEGER                      REFS       543
   2445  INF11    * INTEGER                      REFS       546
   2446  INF12    * INTEGER                      REFS       549
   2454  INF13    * INTEGER                      REFS       568
   2456  INF14    * INTEGER                      REFS       577
   2447  INF15    * INTEGER                      REFS       556
   2451  INF16    * INTEGER                      REFS       562
   2466  INF17    * INTEGER                      REFS       610
   2525  INF18    * INTEGER                      REFS       802
   2523  INF19    * INTEGER                      REFS       796
   2441  INF2     * INTEGER                      REFS       517
   2543  INF20    * INTEGER                      REFS       913
   2551  INF21      INTEGER                      REFS       937        949
   2554  INF22    * INTEGER                      REFS       944
   2451  INF3     * INTEGER                      REFS       598
   2437  INF4       INTEGER                      REFS       491        721     750
   2515  INF5       INTEGER                      REFS       762        774
   2443  INF6     * INTEGER                      REFS       540
    230  INITIAL    INTEGER            FARRAY    REFS        77        413     459     478     497
   2467  INMCH    * INTEGER                      REFS       611
   2507  INMCH1     INTEGER                      REFS       722        751
   2031  INMCH2     INTEGER            FARRAY    REFS        84        492
   2526  INO71    * INTEGER                      REFS       803
   2545  INO22    * INTEGER                      REFS       919
   2552  INO73    * INTEGER                      REFS       938
   2265  IN21       INTEGER                      REFS       783    DEFINED     285
   2473  IOUT       INTEGER                      REFS       730        814  DEFINED     637     641
   2524  IPRES    * INTEGER                      REFS       797
   2263  IPSA2      INTEGER                      REFS       619    DEFINED     285
   2264  IPSA3      INTEGER                      REFS       630    DEFINED     285
    232  IRESET     INTEGER            FARRAY    REFS        77        459     573
   2513  IRPMT    * INTEGER                      REFS       732
   2550  IRPSOT   * INTEGER                      REFS       924
   2425  ISTART     INTEGER                      REFS       830    DEFINED     414     831
   2463  ITAMB    * INTEGER                      REFS       604
   2520  ITAMB1   * INTEGER                      REFS       769
   2474  IVCAS    * INTEGER                      REFS       642
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      SUBROUTINE ENGOB      74/175  OPT=2                         FTN 4.8+538       82/10/22. 15.12.43        PAGE    22

VARIABLES      SN   TYPE            RELOCATION
 2547  IWATBL    *  INTEGER                         REFS      923
 3452  IWATER       INTEGER              FARRAY     REFS      173       565
 3545  IWATFLO      INTEGER              FARRAY     REFS      206       687        900        901    DEFINED    581       594
 3472  JPTC         INTEGER              FARRAY     REFS      187    DEFINED       676        683        691    700
 2505  JPTK         INTEGER                         REFS      859       866    DEFINED        675        682    692       699
 3461  NPTE1        INTEGER      ARRAY              REFS      250       495        725        754    DEFINED    391
 3503  NPTE10       INTEGER      ARRAY              REFS      250       784        788    DEFINED        391
 3505  NPTE11       INTEGER      ARRAY              REFS      250       799    DEFINED        391
 3507  NPTE12       INTEGER      ARRAY              REFS      250       805    DEFINED        391
 3511  NPTE13       INTEGER      ARRAY              REFS      250       917    DEFINED        391
 3513  NPTE14       INTEGER      ARRAY              REFS      250       926    DEFINED        391
 3515  NPTE15       INTEGER      ARRAY              REFS      250       941    DEFINED        391
 3517  NPTE16       INTEGER      ARRAY              REFS      250       947    DEFINED        391
 3463  NPTE2        INTEGER      ARRAY              REFS      250       509        518    DEFINED        391
 3465  NPTE3        INTEGER      ARRAY              REFS      250       560        563    DEFINED        391
 3467  NPTE4        INTEGER      ARRAY              REFS      250       602    DEFINED        391
 3471  NPTE5        INTEGER      ARRAY              REFS      250       608        778    DEFINED        391
 3473  NPTE6        INTEGER      ARRAY              REFS      250       614    DEFINED        391
 3475  NPTE7        INTEGER      ARRAY              REFS      250       646    DEFINED        391
 3477  NPTE8        INTEGER      ARRAY              REFS      250       766    DEFINED        391
 3501  NPTE9        INTEGER      ARRAY              REFS      250       772    DEFINED        391
 2266  NPTD         INTEGER                         REFS      727    DEFINED       285
 3454  NR           REAL                 FARRAY     REFS       53       173        510    DEFINED        509
 2267  NRPMTBL      INTEGER                         REFS      732       733    DEFINED        285
  100  NRTABU       INTEGER      ARRAY   EGDARRY    REFS       64       217        509
 1617  NTTABU       INTEGER      ARRAY   EGDARRY    REFS       64       217        620
 2172  P            REAL                 FARRAY     REFS       93       977        979       1016
 3325  PBLT         REAL                 FARRAY     REFS      109       928        930        932    DEFINED    926
 3767  PBLEU        REAL         ARRAY   EGDARRY    REFS       64       217        926
 2427  PBUT         REAL                            REFS      572       583    DEFINED        418        543    589
 3456  PCDP         REAL                 FARRAY     REFS      173       674        712        714    DEFINED    711
 2504  PCDPLIM      REAL                            REFS      712    DEFINED       674        713
 3375  PCFUEL       REAL                 FARRAY     REFS      135       470    DEFINED        469        470
 3360  PCNOZ        REAL                 FARRAY     REFS      124      1028
 2542  PCOSPJ       REAL                            REFS    2*928       953    DEFINED        909
 3357  PCTHR        REAL                 FARRAY     REFS      124       452        639
 3412  PDELNF       REAL                 FARRAY     REFS      147       736        740    DEFINED        734    736
 2512  PDELNFA      REAL                            REFS      734       735    DEFINED        731
 2511  PDFTSS       REAL                            REFS      734    DEFINED       728
 3400  PEGBLOC      REAL                 FARRAY     REFS      135       609    DEFINED        534        547
 3425  PEGT         REAL                 FARRAY     REFS      162       817        834        835        836    837       842
                                                   858      865       875        878        882        897
                                                DEFINED      815       832        858        865        875    878
 3431  PEGTC        REAL                 FARRAY     REFS      162    DEFINED       817
 3416  PEGTCOR      REAL                 FARRAY     REFS      147       809        810    DEFINED        766    809
 3424  PEGTD        REAL                 FARRAY     REFS      162       815        832    DEFINED        810    914
 2532  PEGTT        REAL                            REFS      882       890        892    DEFINED        836    897
 2527  PEGTP        REAL                            REFS    2*815    DEFINED       837        842
 2450  PENTMPD      REAL                            REFS      593    DEFINED       560
 2452  PENTMPW      REAL                            REFS      590    DEFINED       563
 3350  PFG          REAL                 FARRAY     REFS      124       726        807        928        930    955
                                                DEFINED      496       806        807
 2117  PFGABU       REAL         ARRAY   EGDARRY    REFS       64       217        541
 3402  PFGBLDC      REAL                 FARRAY     REFS      147       806    DEFINED        532        541
 3374  PFGCOR       REAL                 FARRAY     REFS      135       496        806    DEFINED        495    754
 2510  PFGMAX       REAL                            REFS      726    DEFINED       725
 3600  PHRCSU       REAL         ARRAY   EGDARRY    REFS       64       217        550
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      SUBROUTINE ENG08      74/175  OPT=2                          FTN 4.8+538      82/10/22. 15.12.43      PAGE    23

VARIABLES      SN  TYPE           RELOCATION
   3420  PHTABU      REAL       ARRAY   FGDARRY      REFS         64      217      784
   2477  PKACCEL     REAL                            REFS        662      663  DEFINED      651      662
   3467  PKOPER.     REAL               FARRAY       REFS        187      529  DEFINED      369
   3335  PKSPLAY     REAL               FARRAY       REFS        124      806  DEFINED      805
   2270  PKWF1       REAL                            REFS        657  DEFINED      285
   3442  PKWF2       REAL               FARRAY       REFS        173      563      716  DEFINED      413
   3461  PK1         REAL               FARRAY       REFS        173      664      693      771  DEFINED      271
   3462  PK2         REAL               FARRAY       REFS        173      708  DEFINED      271
   3464  PK3         REAL               FARRAY       REFS        187      734  DEFINED      733
   4272  PK3PT       REAL       ARRAY   FGDARRY      REFS         64      217      733
   2271  PK4         REAL                            REFS        815  DEFINED      285
   2272  PK5         REAL                            REFS        647      652  DEFINED      285
   3463  PK6         REAL               FARRAY       REFS        187      714  DEFINED      271
   2557  PMDOT       REAL                            REFS        975    2*977    2*979     1015   2*1016     1017
                                                  DEFINED        968
   3510  PMINLTT     REAL               FARRAY       REFS        200      995  DEFINED      975
   3434  PMP         REAL               FARRAY       REFS        162      957  DEFINED      955
   2605  PNFCOMX     REAL       ARRAY                REFS        230      619  DEFINED      295
   3405  PNFCOM1     REAL               FARRAY       REFS        147    2*624      625      626      628      629      647
                                                     651         652      853      872  DEFINED      620      624      625
                                                     626         628      629      646
   2616  PNFCOM2     REAL       ARRAY                REFS        230      630  DEFINED      295
   3414  PNFCOR      REAL               FARRAY       REFS        147      491      493      507      517      540      541
                                                     543         544      546      547      549      550      556      558
                                                     562         568      569      577      578      598      600      610
                                                     612         673      706      708      750      752      762      764
                                                     774         776      783      796      802      913      915      937
                                                     939         944      946      949      950  DEFINED      490      741
   2503  PNFLIM      REAL                            REFS        706  DEFINED      673      707
   3466  PNFRCS      REAL               FARRAY       REFS        187      528      529  DEFINED      527      529
   3413  PNFRPM      REAL               FARRAY       REFS        147      489      490      527      647      651      652
                                                     661         716      732      733      740      741      847      853
                                                     872        1037  DEFINED      488      489      740
   2633  PNFTB1      REAL       ARRAY                REFS        230      507  DEFINED      293
   3026  PNFTB10     REAL       ARRAY                REFS        230      543  DEFINED      321
   3034  PNFTB11     REAL       ARRAY                REFS        230      546  DEFINED      321
   3040  PNFTB12     REAL       ARRAY                REFS        230      549  DEFINED      321
   3047  PNFTB13     REAL       ARRAY                REFS        230      568  DEFINED      321
   3070  PNFTB14     REAL       ARRAY                REFS        230      577  DEFINED      321
   3117  PNFTB15     REAL       ARRAY                REFS        230      556  DEFINED      321
   3124  PNFTB16     REAL       ARRAY                REFS        230      562  DEFINED      321
   3131  PNFTB17     REAL       ARRAY                REFS        230      610  DEFINED      321
   3270  PNFTB18     REAL       ARRAY                REFS        242      802  DEFINED      354
   3312  PNFTB19     REAL       ARRAY                REFS        242      796  DEFINED      354
   2660  PNFTB2      REAL       ARRAY                REFS        230      762      774  DEFINED      293
   3333  PNFTB20     REAL       ARRAY                REFS        242      913  DEFINED      354
   3345  PNFTB21     REAL       ARRAY                REFS        242      937      949  DEFINED      369
   3401  PNFTB22     REAL       ARRAY                REFS        242      944  DEFINED      369
   2673  PNFTB3      REAL       ARRAY                REFS        230      598  DEFINED      307
   2707  PNFTB4      REAL       ARRAY                REFS        230      491      721      750  DEFINED      307
   2730  PNFTB5      REAL       ARRAY                REFS        230      517  DEFINED      307
   2755  PNFTB6      REAL       ARRAY                REFS        230      540  DEFINED      307
   2764  PNFTB8      REAL       ARRAY                REFS        230      783  DEFINED      307
   3202  PNOZB       REAL       ARRAY                REFS        230      557  DEFINED      321
   2574  PNOZCD      REAL                            REFS       1029  DEFINED     1028
   2540  PNOZP       REAL                            REFS        908      909  DEFINED      907
   3373  PNOZPOS     REAL               FARRAY       REFS        135      524      557      559      679      803      804
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      SUBROUTINE ENGOB       74/175   OPT=2                                   FTN 4.8+538        82/10/22. 15.12.43       PAGE    24

VARIABLES        SN   TYPE          RELOCATION
                                                     907        919        920        938        949       1029      1032      1033
                                                  DEFINED      1032       1033
  3302   PNOZTB       REAL       ARRAY                 REFS       242        803    DEFINED        354
  3342   PNOZTB1      REAL       ARRAY                 REFS       242        919    DEFINED        354
  3371   PNOZTB2      REAL       ARRAY                 REFS       242        938    DEFINED        359
  3426   PPH          REAL               FARRAY        REFS       162        711    DEFINED        818
  2442   PPHBLOC      REAL                             REFS       818    DEFINED        535        550
  3420   PPHCOR       REAL               FARRAY        REFS       147        818    DEFINED        704
  3365   PQFUEL       REAL               FARRAY        REFS       135        465        469        475        476       639
                                                  DEFINED       465
  3423   PRAM         REAL               FARRAY        REFS       162        984        986        987       1015      1016      1017
                                                  DEFINED       911
  2234   PRESHPI      REAL               FARRAY        REFS        93        440        711        797        798
  3323   PRESTB       REAL       ARRAY                 REFS       242        797    DEFINED        354
  3453   PSA          REAL               FARRAY        REFS       173        455        488        571        619       620       630
                                                      631        833        840        841    DEFINED        453       454       455
  2530   PSAP         REAL                             REFS       840    DEFINED        833        841
  3475   PSAR         REAL               FARRAY        REFS       187        848        849        854        865       874       875
                                                      876        879    DEFINED        271        847        849       859       866
                                                      876        879
  2533   PSARA        REAL                             REFS       848      2*849    DEFINED        840        847
  2261   PSAW         REAL                             REFS       571    DEFINED        271
  3415   PSD          REAL               FARRAY        REFS       147        928        930    DEFINED        921
  2544   PSDU         REAL                             REFS       921    DEFINED        917
  2541   PSINPJ       REAL                             REFS     2*930        953    DEFINED        908
  2514   PSYM         REAL                             REFS     2*736    DEFINED        735
  3421   PTBCOR       REAL               FARRAY        REFS       162        819    DEFINED        789
  3427   PTBLD        REAL               FARRAY        REFS       162    DEFINED        819
  3407   PTEMP        REAL               FARRAY        REFS       147        717        728        729    DEFINED        657       717
  2433   PTO          REAL                             REFS       441    DEFINED        440
  3440   PWA          REAL               FARRAY        REFS       162        911        968    DEFINED        519
  3361   PWACOR       REAL               FARRAY        REFS       124        519        923        925    DEFINED        518
  3432   PWATER       REAL               FARRAY        REFS       162        571        573    DEFINED        573
  2453   PWATINEC     REAL                             REFS       626    DEFINED        566        587
  2457   PWEGTC       REAL                             REFS       809    DEFINED        578        591
  2460   PWEGINC      REAL                             REFS       809    DEFINED        580        593
  3410   PWFACEL      REAL               FARRAY        REFS       147        703        709        715        717
                                                  DEFINED       663        703        709        715
  3401   PWFBLDC      REAL               FARRAY        REFS       147        615    DEFINED        533        544
  3406   PWFCOM       REAL               FARRAY        REFS       147        632        650        654        656       557
                                                  DEFINED       631        632        647        654        656
  3403   PWFCOR       REAL               FARRAY        REFS       147        615    DEFINED        602
  2471   PWFCOR1      REAL                             REFS       617    DEFINED        615
  3411   PWFOCEL      REAL               FARRAY        REFS       147        717    DEFINED        716
  3334   PWFGC        REAL               FARRAY        REFS       124        806    DEFINED        574        590
  2472   PWFLIM       REAL                             REFS       656    DEFINED        633        648
  3370   PWFSS        REAL               FARRAY        REFS       135        647        652        657        729
                                                  DEFINED       617
  3367   PWFT         REAL               FARRAY        REFS       135        465    DEFINED        729        730
  2455   PWWFC        REAL                             REFS       632    DEFINED        569        586
  2173   Q            REAL               FARRAY        REFS        93        975       1015       1017
  2174   R            REAL               FARRAY        REFS        93        977        979       1016
  2435   RATIO        REAL                             REFS       447      2*450    DEFINED        446        447
  3162   RFIX         REAL               FARRAY        REFS       109       1003
  3163   RFIY         REAL               FARRAY        REFS       109       1004
  3164   RFIZ         REAL               FARRAY        REFS       109       1005
  3513   RLIMLTT      REAL               FARRAY        REFS       200        997    DEFINED        977
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VARIABLES      SN   TYPE             RELOCATION
  3C22   RM         REAL        ARRAY                  REFS        230      508      775    DEFINED     354
  2017   RMACH      REAL                   FARRAY      REFS         94      436      450
  2030   RMACHP     REAL                   FARRAY      REFS         94      492      494      509      611      613      722
                                                          724      751      753      775      777      914      916      924
                                                     DEFINED       450
  3004   RMFGTB     REAL        ARRAY                  REFS        230      492      722      751    DEFINED     354
  3166   RMP        REAL                   FARRAY      REFS        109     1007
  3165   RMR        REAL                   FARRAY      REFS        109     1006
  3226   RMTBL      REAL        ARRAY                  REFS        230      611    DEFINED     340
  3167   RMY        REAL                   FARRAY      REFS        109     1008
  3C24   RM1        REAL        ARRAY                  REFS        230      914    DEFINED     354
  3352   RPM        REAL                   FARRAY      REFS        124    DEFINED    1037
  2262   RPMT       REAL                               REFS        624    DEFINED     271
  3016   RPMTBL     REAL        ARRAY                  REFS        230      732    DEFINED     343
  3430   RPSOT      REAL        ARRAY                  REFS        242      924    DEFINED     381
  3170   RWTOT      REAL                   FARRAY      REFS        109      530      531      541      544      547      550
                                                          628      943      945    DEFINED     530
  3377   RWTOTBL    REAL        ARRAY                  REFS        242      943    DEFINED     369
  2136   SINALP     REAL                   FARRAY      REFS         94      930      984      946     1017
  2140   SINBET     REAL                   FARRAY      REFS         93      932      986      947     1016
  3654   SUCAL      REAL                   FARRAY      REFS        206      642      644    DEFINED     638
  3610   SVCAL      REAL                   FARRAY      REFS        206      638
  3204   TAMBTB     REAL        ARRAY                  REFS        230      604    DEFINED     340
  3257   TAMBTB1    REAL        ARRAY                  REFS        242      769    DEFINED     340
  3637   TBTABU     REAL        ARRAY      EGDARRY     REFS         64      217      788
  2553   TCF        REAL                               REFS        948    DEFINED     941
  3450   TCFS       REAL                   FARRAY      REFS        173      953    DEFINED     948
  2271   TCFSU      REAL        ARRAY      EGDARRY     REFS         64      217      941
  2555   TCRCS      REAL                               REFS        948    DEFINED     947
  3451   TCWL       REAL                   FARRAY      REFS        173      953    DEFINED     950
  2461   TCWLU      REAL        ARRAY      EGDARRY     REFS         64      217      950
  2560   TFM        REAL                               REFS      2*972      977      979     1016     1017
                                                     DEFINED       969
  2534   TEMP       REAL                               REFS        873      875      876      878      879      890      892
                                                     DEFINED       872      873      883
  2576   TEMPE      REAL                               REFS     2*1031    DEFINED    1030
  2233   TEMPHR     REAL                   FARRAY      REFS         93      437      442
  2556   TEMPP      REAL                               REFS        955    DEFINED     953
  2603   TEMPT      REAL        ARRAY                  REFS        230      495      509      519      560      563      602
                                                          608      614      646      725      754      765      772      778
                                                          784      788      799      805      917      926      941      947
                                                     DEFINED       493      494      558      559      600      601      606
                                                          607      612      613      644      645      723      724      752
                                                          753      764      765      770      771      776      777      798
                                                          904      915      916      925      933      940      945      946
  2563   TEMSQ      REAL                               REFS        975      979    DEFINED     972
  2561   TEM1       REAL                               REFS      2*973      977      979     1015     1016
                                                     DEFINED       970
  2564   TEM1SQ     REAL                               REFS        975      977    DEFINED     973
  2562   TEM2       REAL                               REFS      2*974    DEFINED     971
  2565   TEM2SQ     REAL                               REFS        977      979    DEFINED     974
  2434   THAMB      REAL                               REFS        604      606      769      771    DEFINED     442
  3331   THL        REAL                   FARRAY      REFS        109      997     1006    DEFINED     959      997     1006
  2567   THLRD      REAL                               REFS        997    DEFINED     986
  3332   THM        REAL                   FARRAY      REFS        109      995     1007    DEFINED     957      995     1007
  2566   THMRD      REAL                               REFS        995    DEFINED     984
  3333   THN        REAL                   FARRAY      REFS        109      999     1008    DEFINED     961      999     1008
```

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      SUBROUTINE ENG08       74/175  OPT=2                        FTN 4.8+530       82/10/22. 15.12.43         PAGE     26

 VARIABLES       SN  TYPE            RELOCATION
   2570  THNRD      REAL                              REFS         988        999    DEFINED       967       988
   2500  TLIM1      REAL                              REFS         680    DEFINED        670       681
   2501  TLIM2      REAL                              REFS         689    DEFINED        671       690
   2502  TLIM3      REAL                              REFS         697    DEFINED        672       698
   4264  TOPTS      REAL      ARRAY      FGDARRY      REFS          64        217        727
   3460  TTC        REAL                 FARRAY       REFS         173        670        671       672       680       683       684
                                                           689     691        693        697       700       701     2*892       896
                                                           899     900        901    DEFINED       834       896
   3471  TTCC       REAL                 FARRAY       REFS         197    DEFINED        898
   3476  TTIME      REAL                 FARRAY       REFS         187    DEFINED        420
   2432  TTO        REAL                              REFS         438        624        814   DEFINED       437
   2531  TW         REAL                              REFS         890        892        895   DEFINED       835       895
   3377  TZERO      REAL                 FARRAY       REFS         135        735    DEFINED       727
   2131  U          REAL                 FARRAY       REFS          84        446        448       449
   2436  UP         REAL                              REFS         450    DEFINED        448       449
   3441  VCASTBL    REAL      ARRAY                   REFS         242        642    DEFINED       381
   2233  VS         REAL                 FARRAY       REFS          93        450
   2005  VT         REAL                 FARRAY       REFS          84        911
    323  WATABU     REAL      ARRAY      FGDARRY      REFS          64        217        518
   3403  WATBL      REAL      ARRAY                   REFS         242        923    DEFINED       381
   1630  WFCTBU     REAL      ARRAY      FGDARRY      REFS          64        217        631
   2465  WFKDAY     REAL                              REFS         615    DEFINED        608
   1453  WFKDAYU    REAL      ARRAY      FGDARRY      REFS          64        217        608
   2470  WFKMO      REAL                              REFS         615    DEFINED        614
   1266  WFKMOU     REAL      ARRAY      FGDARRY      REFS          64        217        614
   2476  WFMAX      REAL                              REFS       2*654    DEFINED        650       652
   3611  WFRCSU     REAL      ARRAY      FGDARRY      REFS          64        217        544
    546  WFTABU     REAL      ARRAY      FGDARRY      REFS          64        217        602
   1570  WFWTU      REAL      ARRAY      FGDARRY      REFS          64        217        569
      0  WNOMLLU    REAL      ARRAY      FGDARRY      REFS          64        217        646
   3473  XK1        REAL                 FARRAY       REFS         187        853        872   DEFINED       271
   3474  XK2        REAL                 FARRAY       REFS         187        872        873       875       876       878       879
                                                   DEFINED         271
   2274  XK3        REAL                              REFS         988    DEFINED        369
   2273  XK4        REAL                              REFS         980    DEFINED        369
   3516  YMINLTT    REAL                 FARRAY       REFS         200        980        999   DEFINED       979       980

 EXTERNALS          TYPE    ARGS        REFFERENCES
         ATMOS                1            423        425
         COS        REAL      1  LIBRARY   309
         FCALC                4            508        557        775        914        943
         FSRCH                5            491        492        507        517        540       543       546       549       556
                                           562        568        577        598        590       604       605       610       611
                                           619        630        642        643        721       722       732       750       751
                                           762        763        768        769        774       783       796       797       802
                                           803        913        919        923        924       937       939       944       949
         F1A        REAL      4            727
         F1B        REAL      4            541        544        547        560        569       574       620       631       733
                                           920        350
         F2C        REAL      4            435        509        518        560        563       502       609       615       646
                                           725        754        766        772        778       744       789       799       805
                                           917        926        941        947
         SIN        REAL      1  LIBRARY   908

 INLINE FUNCTIONS   TYPE    ARGS          DEF LINE   REFFERENCES
         AMAX1      REAL      0  INTRIN              447        455        489        525       528       656       717       736
                                                     873       1031       1033
```

```
      SUBROUTINE ENG09       74/175  OPT=2                          FTN 4.8+538       82/10/22. 15.12.43       PAGE     27

  INLINE FUNCTIONS    TYPE    ARGS         DEF LINE  REFERENCES
      AMIN1       REAL      0  INTRIN                  447       455       489       525       528       656       717       736
                                                       873      1031      1073

  STATEMENT LABELS               DEF LINE    REFERENCES
     21  100                        427        413
     76  110                        466        464
    134  120                        498        459        478
    175  130                        537        531
    226  140                        551        536
    273  150                        583        572
    276  160                        585        565
    300  170                        588        571
    301  180                        590        534
    305  190                        595        592
    422  200                        649        639
    432  210                        653        651
    520  220                        686        678
    536  230                        695        687
    551  240                        702        685        694
    554  250                        704        680        689       697
    566  260                        710        677        705       706
    600  270                        716        712
   1001  290                        838        830
   1031  290                        861        854
   1041  300                        868        853
   1057  310                        878        874
   1064  320                        880        848        860       867       877

  COMMON BLOCKS   LENGTH
      FARRAY       2000
      FGDARRY      2250

  STATISTICS
    PROGRAM LENGTH                36334B     1947
    CM LABELED COMMON LENGTH     10232B      4250
          160000B CM USED
```

```
SUBROUTINE AC07       74/175  OPT=2                    FTN 4.8+536       82/10/22. 15.12.52       PAGE    1

              SUBROUTINE AC07
        *
        *
        *
        *
        *
        *
              COMMON / FARRAY / F(1001)

              EQUIVALENCE
             .  (FDT    ,F(118)),
             .  (CDT    ,F(119)),
             .  (INITIAL,F(153)),
             .  (TAC    ,F(277)),
             .  (A      ,F(1001))

              DIMENSION
             .  A(1000)

              IF (INITIAL .EQ. 1) CALL WTBAL07

              CDT = FDT
              CALL TEOM1(TAC)
              CALL REOM1(TAC)

              CALL PEC07
              CALL RCS07
              CALL ENG08
              CALL SEC07
              CALL AERDYN9
              CALL WTBAL07

              CALL TEOM2(TAC)
              CALL REOM2(TAC)
              CDT = FDT

              RETURN
              END

  SYMBOLIC REFERENCE MAP (R=2)

ENTRY POINTS     DEF LINE     REFERENCES
  1  AC07           1            44
```

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      SUBROUTINE AC07        74/175  OPT=2                           FTN 4.8+538        82/10/22. 15.12.52        PAGE      2

VARIABLES      SN   TYPE            RELOCATION
  1750   A           REAL      ARRAY   FARRAY         REFS        11        19
   165   COT         REAL              FARRAY         REFS        11   DEFINED       27        40
     3   F           REAL      ARRAY   FARRAY         REFS         A       5*11
   165   FOT         REAL              FARRAY         REFS        11        27       40
   424   TAC         INTEGER           FARRAY         REFS        11        28       29        38        39
   230   INITIAL     INTEGER           FARRAY         REFS        11        25

EXTERNALS           TYPE   ARGS          REFERENCES
        AEROYHR             0              25
        ENG08               0              33
        PEC07               0              31
        PCS07               0              32
        PERM1               1              29
        PERM2               1              39
        SEC07               0              34
        TERM1               1              28
        TERM2               1              38
        WTRAL07             0              25          36

COMMON BLOCKS    LENGTH
        FARRAY      2000

STATISTICS
  PROGRAM LENGTH                    30B       24
  CM LABELED COMMON LENGTH        3720B     2000
        160000B CM USED
```

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SUBROUTINE RCS07      74/175  OPT=2                    FTN 4.8+538       82/10/22. 15.12.52       PAGE     1

      SUBROUTINE RCS07                                              YAVAC     46
                                                                    YAVAC     47
                                                                    YAVAC     48
                                                                    YAVAC     49
                                                                    YAVAC     50
*     COMMON STATEMENTS                                             YAVAC     51
                                                                    YAVAC     52
      COMMON / FARRAY / F(1001)                                     YAVAC     53
                                                                    YAVAC     54
                                                                    YAVAC     55
*     TYPE STATEMENTS                                               YAVAC     56
                                                                    YAVAC     57
      INTEGER                                                       YAVAC     58
     .    RRMENM ,                                                  YAVAC     59
     .    RRNTNM ,                                                  YAVAC     60
     .    RRUNA ,                                                   YAVAC     61
     .    RRNTNM                                                    YAVAC     62
                                                                    YAVAC     63
                                                                    YAVAC     64
*     EQUIVALENCE STATEMENTS                                        YAVAC     65
                                                                    YAVAC     66
      EQUIVALENCE                                                   YAVAC     67
     .    (D2R      ,F( 91)),                                       YAVAC     68
     .    (A        ,F(1001))                                       YAVAC     69
                                                                    YAVAC     70
      EQUIVALENCE                                                   YAVAC     71
     .    (PAMR     ,A(181)),                                       YAVAC     72
     .    (CGES     ,A(253)),                                       YAVAC     73
     .    (CGAL     ,A(254)),                                       YAVAC     74
     .    (CGWL     ,A(255)),                                       YAVAC     75
     .    (RFTX     ,A(651))                                        YAVAC     76
                                                                    YAVAC     77
      EQUIVALENCE                                                   YAVAC     78
     .    (RFTY     ,A(652)),                                       YAVAC     79
     .    (RFTZ     ,A(653)),                                       YAVAC     80
     .    (RHQ      ,A(654)),                                       YAVAC     81
     .    (EMP      ,A(655)),                                       YAVAC     82
     .    (EMY      ,A(656)),                                       YAVAC     83
     .    (RUTHT    ,A(657)),                                       YAVAC     84
     .    (RDUCT    ,A(658)),                                       YAVAC     85
     .    (RPUP3    ,A(660)),                                       YAVAC     86
     .    (RPDP3    ,A(661)),                                       YAVAC     87
     .    (RPFP3    ,A(662))                                        YAVAC     88
                                                                    YAVAC     89
      EQUIVALENCE                                                   YAVAC     90
     .    (RPTP3    ,A(663)),                                       YAVAC     91
     .    (RPT      ,A(664)),                                       YAVAC     92
     .    (RPF      ,A(665)),                                       YAVAC     93
     .    (RPH      ,A(666)),                                       YAVAC     94
     .    (RPD      ,A(667)),                                       YAVAC     95
     .    (WFDW     ,A(668)),                                       YAVAC     96
     .    (REDW     ,A(669)),                                       YAVAC     97
     .    (RIWF     ,A(670)),                                       YAVAC     98
     .    (RIWT     ,A(671)),                                       YAVAC     99
     .    (RFFF     ,A(672))                                        YAVAC    100
                                                                    YAVAC    101
      EQUIVALENCE                                                   YAVAC    102
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```
     .      (REFT    ,A(673)),
     .      (REFW    ,A(674)),
     .      (REITEW  ,A(675)),
     .      (RNET    ,A(676)),
     .      (RNEF    ,A(677)),
     .      (REFWD   ,A(678)),
     .      (RNEWU   ,A(679)),
     .      (RWT     ,A(680)),
     .      (RWF     ,A(681)),
     .      (RWWD    ,A(682))
      EQUIVALENCE
     .      (RWWU    ,A(693)),
     .      (RX2PIG  ,A(695)),
     .      (RXYPIG  ,A(696)),
     .      (RXVF    ,A(697)),
     .      (RXVWD   ,A(698)),
     .      (RXVWU   ,A(699)),
     .      (REFCR   ,A(690)),
     .      (REFCY   ,A(691)),
     .      (REFGF   ,A(692))
      EQUIVALENCE
     .      (REGWD   ,A(693)),
     .      (REGWU   ,A(694)),
     .      (RAWUL   ,A(695)),
     .      (RAWDL   ,A(696)),
     .      (RAYS    ,A(697)),
     .      (RAE     ,A(698)),
     .      (RA2W    ,A(699)),
     .      (RACE    ,A(700)),
     .      (RASE    ,A(701)),
     .      (RAWUR   ,A(703)),
     .      (RAWDR   ,A(704)),
     .      (RE17POS,A(793)),
     .      (RSH     ,A(815)),
     .      (PTHLD   ,A(816))
C
*     DIMENSION STATEMENTS
C
      DIMENSION
     .         A        (1000),
     .         REP      (   2),
     .         RPYP     (   4),
     .         RLOWER   (  12),
     .         REFETR   (  10),
     .         REFTIR   (  16),
     .         REFWTR   (  12),
     .         RETEWTR  (  19),
     .         RETITR   (  16),
     .         REUWTR   (  12)
      DIMENSION
     .         RCWETR   (  10),
     .         REWTTR   (  16),
     .         RMEFTAR  (   6),
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SUBROUTINE RCS07      74/175   OPT=2                      FTN 4.6+538        82/10/22. 15.12.52        PAGE     3

              .       RMETAB (   25),
              .       RMENOTA(    6),
              .       RPEWUTA(    6),
              .       RPMTNM (    2),
              .       RPREWT (    2),
              .       RPRTMF (    2),
              .       RPRWO  (    2)
               DIMENSION
              .       RPRWDP (    4),
              .       RPRWF  (    2),
              .       RPPWEP (    4),
              .       RPPWT  (    2),
              .       RP2WTP (    4),
              .       RPRWU  (    2),
              .       RPPWUP (    4),
              .       RPWNM  (    2),
              .       RPWTNM (    2),
              .       RXRPTAB(   25)
               DIMENSION
              .       RXVETAB(    6),
              .       RXVWOTA(    6),
              .       RXVWUTB(    6),
              .       RXYPTAB(   25),
              .       NPFWNM (    2),
              .       NPEFNM (    2),
              .       RPFWTR (    4),
              .       RNOZTBL(    7),
              .       RACETBL(    7),
              .       RNOZ   (    2)

        *     DATA STATEMENTS

               DATA
              .RFJNM/6,2/,RPWTNM/8,2/,RPMTNF/5,5/,RPMENM/6/,
              .RP2WUP/0.0,10.0,0.0,0.1.0/,
              .RPFWNM/ 9,2 / ,
              .NPEFNM/ 5,2 / ,
              .RPFWTR/ 0.0 ,16.0, 0.0 , 1.0 /,
              .FCHWTR/ .964  , .925  , .985  , .830  , .756  , .685  ,
              .        .964  , .913  , .863  , .795  , .706  , .619  /,
              .RPPWDP/0.0,10.0,0.0,0.1.0/
               DATA
              .RPOWTP/ .964  , .336  , .909  , .745  , .694  , .642  ,
              .        .964  , .870  , .779  , .705  , .644  , .585  /,
              .RPRWEP/0.0, 8.0,0.0,1.0/,
              .REWFTR/1.0    , .97   , .92   , .86   , .787  ,
              .       1.0    , .955  , .89   , .915  , .726  /,
              .RP2WTP/0.0,14.0,0.0,1.0/,
              .FEWTTF/1.0    , .975  , .94   , .88   , .83   , .795  ,
              .        .796  , .777  ,
              .       1.0    , .96   , .91   , .845  , .785  , .745  ,
              .        .731  , .717  /
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SUBROUTINE WCS07      74/175   OPT=2                    FTN 4.8+538        82/10/22. 15.12.52        PAGE    4

              DATA                                                                      YAVAC     217
             .PEFFTA/ .95   , .906  , .845  , .76   , .646  ,                           YAVAC     218
             .        .95   , .93   , .825  , .735  , .613  /,                          YAVAC     219
             .PEFFTB/1.0    , .98   , .945  , .90   , .86   , .80   ,                   YAVAC     220
             .        .731  , .792  ,                                                   YAVAC     221
             .       1.0    , .96   , .915  , .86   , .90   , .765  ,                   YAVAC     222
             .        .76   , .756  /,                                                  YAVAC     223
             .PEFWTP/1.0    , .957  , .904  , .852  , .795  , .728  ,                   YAVAC     224
             .       1.0    , .942  , .877  , .821  , .760  , .720  /                   YAVAC     225
                                                                                        YAVAC     226
              DATA                                                                      YAVAC     227
             .PETTTB/ .94   , .91   , .86   , .80   , .715  , .63   ,                   YAVAC     228
             .        .533  , .556  ,                                                   YAVAC     229
             .        .94   , .89   , .825  , .75   , .665  , .59   ,                   YAVAC     230
             .        .572  , .554  /,                                                  YAVAC     231
             .PEFFWTB/1.0   , .971  , .93   , .873  , .805  , .740  ,                   YAVAC     232
             .        .690  , .626  , .577  ,                                           YAVAC     233
             .       1.0    , .952  , .901  , .843  , .775  , .710  ,                   YAVAC     234
             .        .650  , .596  , .547  /                                           YAVAC     235
                                                                                        YAVAC     236
              DATA                                                                      YAVAC     237
             .PAYP/0.0,1.00,0.0,1.00/,                                                  YAVAC     238
             .RMETAR/.1,.85,1.68,2.525,3.38,.36,1.17,1.98,2.79,3.59,.71,1.49,           YAVAC     239
             .2.29,3.05,3.7,1.00,1.93,2.8,3.3,3.81,1.47,2.12,2.86,3.54,3.44/,           YAVAC     240
             .PEP/0.0,1.00/,                                                            YAVAC     241
             .SMEFTAR/.12,.55,1.125,1.68,2.24,2.79/,                                    YAVAC     242
             .PHEWOTR/.05,.37,.78,1.25,1.72,2.20/,                                      YAVAC     243
             .PHEWUTR/.05,.22,.49,0.74,0.97,1.18/,                                      YAVAC     244
             .PXYPTAH/0.0,2.48,5.3,7.9,10.6,0.0,2.66,2.7,7.78,10.33,0.0,2.56,           YAVAC     245
             .5.15,7.63,10.23,0.0,3.2,57,5.1,7.61,10.1,0.0,2.51,5.09,7.50,9.75/         YAVAC     246
                                                                                        YAVAC     247
              DATA                                                                      YAVAC     248
             .PXYPTA1/0.0,0.0,0.0,0.0,0.0,0.0,.83,.70,.61,.53,.50,1.97,1.71,1.54,       YAVAC     249
             .1.4,1.3,3.18,3.8,2.87,2.4,2.0,4.46,3.96,3.65,3.27,2.45/,                  YAVAC     250
             .PXVFTAA/1.0,1.9,3.69,5.45,7.07,8.59/,                                     YAVAC     251
             .PXVWOTR/0.0,.95,2.05,1.72,4.54,6.03/,                                     YAVAC     252
             .PXVWUTR/0.0,.73,1.49,2.10,2.57,2.89/,                                     YAVAC     253
             .RNIZTAL / 6.0 , 12.0 , 18.0 , 24.0 , 30.0 , 36.0 , 46.0 / ,               YAVAC     254
             .FACFTAL / 0.0 ,   .1 ,   .28,   .5 ,   .75,   .9 ,  1.0 / ,               YAVAC     255
             .RNIZ     / 6.0 , 46.0 /                                                   YAVAC     256
                                                                                        YAVAC     257
              DATA                                                                      YAVAC     258
             .     RK4   /  21.5758    /,                                               YAVAC     259
             .     RK5   /  17.42      /,                                               YAVAC     260
             .     RK6   /   7.15417   /,                                               YAVAC     261
             .     RK7   /   2.13666   /,                                               YAVAC     262
             .     RK8   /   1.5526    /,                                               YAVAC     263
             .     RK9   /  21.033     /,                                               YAVAC     264
             .     RK10  /  14.32      /,                                               YAVAC     265
             .     RK11  /   1.15933   /,                                               YAVAC     266
             .     RK12  /   2.042     /,                                               YAVAC     267
             .     FASE  /   1.0   /                                                    YAVAC     268
                                                                                        YAVAC     269
                                                                                        YAVAC     270
                                                                                        YAVAC     271
                                                                                        YAVAC     272
      *  CHECK YAW POS AREA FOR LEFT OR RIGHT                                           YAVAC     273
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```
      RAY = RAYS
      IRIGHT = 1
      IF(RAY .LT. 0.0) IRIGHT = 0
      RAY = ABS(RAY)
      IF(PNOZPOS .GT. 2.) GO TO 6
      REFY =0.0
      REFZ =0.0
      REFX =0.0
      RMP  =0.0
      RMY  =0.0
      RMR  =0.0
      FWEAT = 0.0
      POUCT = 0.0
      RETURN
C
*  CALCULATE RATIO FOR DAMPING RCS WITH NOZZLE ANGLE
C
    6 CONTINUE
*****
*  DETERMINE BLEED AIR OPENING PERCENT AS FUNCTION OF NOZZLE ANGLE
*****
      RACF = (PNOZPOS - 2.0)/13.
      RACF = AMIN1(1.,AMAX1(RACF,0.))
      PHILMAX = 4.0911**RACF**PH/SQRT(PTBLD)
C
******
*  AREAS OF PUFFER VALUES ARE COMPUTED IN PRIMARY FLIGHT CONTROLS
******
*  RAY   - AREA OF YAW PUFFER   - SQ. IN
*  RAF   - AREA OF FRONT PITCH PUFFER - SQ. IN
*  RAPR  - AREA OF REAR  PITCH PUFFER - SQ. IN
*  RAWUL - AREA OF LEFT WING UP-BLOWING PUFFER - SQ. IN.
*  RAWDL - AREA OF LEFT WING DN-BLOWING PUFFER - SQ. IN.
*  RAWUR - AREA OF RT.  WING UP-BLOWING PUFFER - SQ. IN.
*  RAWDR - AREA OF RT.  WING DN-BLOWING PUFFER - SQ. IN.
*  CALCULATION OF PRESSURE RECOVERY FACTORS FOR EACH VALUE BASED ON
*  CONTROL USAGE AND DUCT LOSS TABLES
*  SELECTION OF WHICH CURVE TO USE IS BASED ON TWO OR MORE SETS OF
*  APPLICABLE VALUES MORE THAN 50 PCT. OPEN. THE SECOND VARIABLE OF
*  THE TABLE LOOK-UP REPRESENTS THIS OCCURENCE . 0 - CURVE A ,1-CURVE B
C
*  COMPUTE PERCENT OPENING OF VALUE COMBINATIONS
*  RPUAB DETERMINES WHICH TABLE LOOK-UP TO USE.
C
      IRPUAB  = 0
      IF((RAY/3.5) .GT. .5)  IRPUAB = IRPUAB + 1
      IF((RAF/7.23).GT. .5) IRPUAB = IRPUAB + 1
      IF((RAPR/8.68).GT. .5) IRPUAB = IRPUAB + 1
      TEMP = RAWUL + RAWDL + RAWUR + RAWDR
      IF((TEMP/8.15) .GT. .5) IRPUAB = IRPUAB + 1
      IF(IRPUAB .EQ. 1) IRPUAB = 0
      RPUAB = IRPUAB
      RPUAB = AMIN1(1.,AMAX1(RPUAB,0.))
C
*  CALCULATION OF CORRECTION FACTORS DUE TO DUCT LOSSES
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*     COMPUTE PRESSURES LOSS AT WING VALVES
*     FUW
         RWTEMP    = RAWUL  + RAWDL   + RAWUR + RAWDR
         RTTEMP    = RAY   + RAP2
         RFATEMP   = RAF   +  RWTEMP
         RP2WU(1) = RWTEMP
         RP2WU(2) = RPUAR
         RFUW = F2A(RPRWU,R2WUM,RPRWUP,RFUWTAB)
*     FDW
         RP2WD(1) = RWTEMP
         RP2WD(2) = RPUAR
         RFDW = F2A(RPRWD,RPWDM,RPRWDP,RFDWTAB)
*     FWF
         RP2WF(1) = RAF
         RP2WF(2) =RPUAR
         RFWF = F2A(RPRWF,RPFFMM,RPRWFP,RFWFTAB)
*     FWT
         RP2WT(1) = RTTEMP
         RP2WT(2) =RPUAR
         RFWT = F2A(RPRWT,RPWTMM,RPRWTP,RFWTTAB)
         RPUP3 =RFUW+RFWF+RFWT
         RPDP3 =RFDW+RFWF+RFWT
*     COMPUTE PRESSURE LOSS AT FRONT VALVE
*     FFF
         RFFF = F2A(RPRWF,RPFFMM,RPRWFP,RFFFTAB)
*     FFT
         RFFT = F2A(RPRWT,RPWTMM,RPRWTP,RFFTTAB)
*     FFW
         RFFW = F2A(RPRWD,RPWDM,RPRWDP,RFFWTAB)
         RPFP3 = RFFF + RFFT + RFFW
*     COMPUTE PRESSURE LOSS AT TAIL VALVE
*     FTT
         RFTT = F2A(RPRWT,RPWTMM,RPRWTP,RFTTTAB)
*     FT(F+W)
         RP2FWT(1) = RFWTEMP
         RP2FWT(2) = RPUAR
         RFTFW = F2A(RP2FWT,RPFWMM,RFFWTP,RFTFWTAB)
         RPTP3 = RFTT + RFTFW
*     CALCULATE PUFFER VALVE MASS FLOW RATES AND TOTAL BLEED
*     COMPUTE MASS FLOW PARAMETER FOR TAIL VALUES - PITCH AND YAW
         RPCTRP = RAPP / 9.69
         RPCTY  = RAY  / 3.50
         RP2TMF(1)= RPCTRP
         RP2TMF(2)= RPCTY
         RMFT =F2A(RPPTMF,RPMFMM,RPYP,RMFTAB)
*     COMPUTE MASS FLOW PARAMETER FOR FRONT VALUE PITCH
         RPCTF = RAF/7.33
         RMFF = F1A(RPCTF,RPMFMM,RFP,RMFFTAB)
*     COMPUTE MASS FLOW PARAMETER FOR DOWN BLOWING WING VALVES
         RPCTWD = (RAWDL   + RAWDR)/5.05
         RMFWD  =F1A(RPCTWD,RPMFMM,RFP,RMFWDTAB)
*     COMPUTE MASS FLOW PARAMETER FOR UP BLOWING WING VALVES
         RPCTWU = (RAWUL + RAWUR)/3.1
         RMFWU = F1A(RPCTWU,RPMFMM,RFP,RMFWUTAB)
         RTALDC = RTALD*.5555
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      *   COMPUTE TAIL VALVE PRESSURE                                        YAVAC      388
              RPT = RPTP3*PPH                                                YAVAC      389
      *   COMPUTE FRONT VALVE PRESSURE                                       YAVAC      390
              RPF = RPFP3*PPH                                                YAVAC      391
      *   COMPUTE UP-BLOWING WING VALVE PRESSURE                             YAVAC      392
              RPU = RPUP3*PPH                                                YAVAC      393
      *   COMPUTE DOWN BLOWING WING VALVE PRESSURE                           YAVAC      394
              RPD = RPDP3*PPH                                                YAVAC      395
              RTEMP = RTALOC**.5                                             YAVAC      396
      *   COMPUTE MASS FLOW AT TAIL VALVE - LB/SEC                           YAVAC      397
              RWT = RAFT*RPT/RTEMP                                           YAVAC      398
      *   COMPUTE MASS FLOW AT FRONT VALVE - LB/SEC                          YAVAC      399
              RWF = RAFF*RPF/RTEMP                                           YAVAC      400
      *   COMPUTE MASS FLOW AT DOWN BLOWING WING VALVE - LBS/SEC             YAVAC      401
              RWWD = (2*RWD * RPD)/RTEMP                                     YAVAC      402
      *   COMPUTE MASS FLOW AT UP-BLOWING WING VALVE - LBS/SEC               YAVAC      403
              RWWU = (2*RWU * RPU)/RTEMP                                     YAVAC      404
              RWTOT = RWT+RWF+2WWD+2WWU                                      YAVAC      405
      *   COMPUTE MAXIMUM POSSIBLE BLEED RATE                                YAVAC      406
              IF(RWTOT .GT. RWBLMAX) RWTOT = RWBLMAX                         YAVAC      407
                                                                             YAVAC      408
      *   CALCULATION OF VALVE THRUSTS                                       YAVAC      409
                                                                             YAVAC      410
      *   REAR PITCH VALUE THRUST PARAMETER                                  YAVAC      411
              RXRPTC =F2A(RPRTMF,RPMTHM,PPYP,RXRPTAB)                        YAVAC      412
      *   YAW VALUE THRUST PARAMETER                                         YAVAC      413
              RXYPTC =F2C(RPCTMF,RPMTHM,PPYP,RXYPTAB)                        YAVAC      414
      *   FRONT PITCH VALUE THRUST PARAMETER                                 YAVAC      415
              RXVF = F1A(RPCTF,RPMFNM,PFP,RXVFTAB)                           YAVAC      416
      *   DOWN BLOWING WING VALVE THRUST PARAMETER                           YAVAC      417
              RXVWD = F1A(RPCTWD,RPMFNM,PFP,RXVWDTB)                         YAVAC      418
              RPCTDL= RAWDL / 5.05                                           YAVAC      419
              RPCTDR= RAWDR / 5.05                                           YAVAC      420
              RPCTUL= RAWUL / 3.1                                            YAVAC      421
              RPCTUR= RAWUR / 3.1                                            YAVAC      422
      *   COMPUTE LEFT AND RIGHT DOWN BLOWING THRUST FOR FAILURE MODES       YAVAC      423
              RXVWDL = F1A(RPCTDL,RPMFNM,PFP,RXVWDTB)                        YAVAC      424
              RXVWDR = F1A(RPCTDR,RPMFNM,PFP,RXVWDTB)                        YAVAC      425
      *   UP BLOWING  WING VALUE THRUST PARAMETER                            YAVAC      426
              RXVWU=  F1A(RPCTWU,RPMFNM,PFP,RXVWUTB)                         YAVAC      427
              RXVWUL = F1A(RPCTUL,RPMFNM,PFP,RXVWUTB)                        YAVAC      428
              RXVWUR = F1A(RPCTUR,RPMFNM,PFP,RXVWUTB)                        YAVAC      429
              RTEMP =  .35 * RACF                                            YAVAC      430
      *   REAR VALVE THRUST - PITCH                                          YAVAC      431
              RFRP = -(RPT - PAMB)*RXRPTC*RTEMP                              YAVAC      432
      *   REAR VALVE THRUST - YAW                                            YAVAC      433
              RFRY =(RPT - PAMB)*RXYPTC*RTEMP                                YAVAC      434
              IF(IRIGHT .NE. 1) RFRY = -RFRY                                 YAVAC      435
      *   FRONT VALVE THRUST- PITCH                                          YAVAC      436
              RDUCT = RPF - PAMB                                             YAVAC      437
              RFIF = -RDUCT * RXVF *RTEMP                                    YAVAC      438
      *   DOWN BLOWING WING VALVE THRUST                                     YAVAC      439
              RFSWD  = -(RPD-PAMB) * RXVWD                                   YAVAC      440
              RFSWD = RFSWD * RACF                                           YAVAC      441
      *   UP BLOWING WING VALVE THRUST                                       YAVAC      442
              RFSWU  =  (RPU-PAMB) * RXVWU                                   YAVAC      443
              RFSWU = RFSWU * RACF                                           YAVAC      444
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      *  COMPUTE LEFT AND RIGHT WING VALVE THRUST                              YAVAC  445
           RFGWDR =  -(PDD - PAMB) + RXVWDR *RACF                              YAVAC  446
           RFGWDL =  -(PDD - PAMB) + PXVWDL *RACF                              YAVAC  447
           RFGWUR =   (PPU - PAMB) + RXVWUR *RACF                              YAVAC  448
           RFGWUL =   (PPU - PAMB) + RXVWUL *RACF                              YAVAC  449
                                                                               YAVAC  450
      *  CALCULATION OF RCS FORCES AND MOMENTS                                 YAVAC  451
      *  FORCES AND MOMENTS ARE COMPUTED IN BODY AXIS COORDINATES              YAVAC  452
                                                                               YAVAC  453
           RDEG8 = 4.0 * D2R                                                   YAVAC  454
           RSIN8 = SIN(RDEG8)                                                  YAVAC  455
           RCOS8 = COS(RDEG8)                                                  YAVAC  456
           RDEG7P6 = 7.633 * D2R                                               YAVAC  457
           RSIN7P6 = SIN(RDEG7P6)                                              YAVAC  458
           RCOS7P6 = COS(RDEG7P6)                                              YAVAC  459
           RDEG5  = 5.0*D2R                                                    YAVAC  460
           RSIN5 = SIN(RDEG5)                                                  YAVAC  461
           RCOS5 = COS(RDEG5)                                                  YAVAC  462
           RDEG7  = 7.0*D2R                                                    YAVAC  463
           RSIN7 = SIN(RDEG7)                                                  YAVAC  464
           RCOS7 = COS(RDEG7)                                                  YAVAC  465
           RCOS75 = RCOS5*RCOS7                                                YAVAC  466
      *  COMPUTE NORMAL FORCE                                                  YAVAC  467
           RFTZ    = RFGF*RCOS7P6 + RFGR*RCOS8  + RFGWD*RCOS75 + RFGWU*RCOS75  YAVAC  468
           RCS75   = RCOS5*RSIN7                                               YAVAC  469
      *  COMPUTE AXIAL FORCE                                                   YAVAC  470
           RFTX    = RFGF*RSIN7P6 -RFGR*RSIN8  - RFGWD*RCS75   - RFGWU*RCS75   YAVAC  471
           RCS57 =  RSIN5*RCOS7                                                YAVAC  472
      *  COMPUTE SIDE FORCE                                                    YAVAC  473
           RFTY = RFGY -  RCS57*((RFGWDR - RFGWDL) + (RFGWUR - RFGWUL))        YAVAC  474
                                                                               YAVAC  475
      *  MOMENT EQUATIONS ARE ABOUT CG : FS = 346.6 IN                         YAVAC  476
      *                                  WL =  96.0 IN                         YAVAC  477
      *                                  BL =   0.0 IN                         YAVAC  478
                                                                               YAVAC  479
      *  COMPUTE PITCHING MOMENT                                               YAVAC  480
           RMP   =  RFGR* (RCOS8*RK4   + RSIN8*RK8)                            YAVAC  481
           +  RFGF* (RSIN7P6*RK7 - RCOS7P6*RK5)                                YAVAC  482
           +  (RFGWD+RFGWU)*(RK6*RCCS75  - RCS75*RK11)                         YAVAC  483
      *  COMPUTE YAWING MOMENT                                                 YAVAC  484
           RMY   =  ( RFGWDR - RFGWDL)*(RCS57*RK6   + RCS75*RK10)              YAVAC  485
           +        ( RFGWUR - RFGWUL)*(RCS57*RK6   + RCS75*RK10)              YAVAC  486
                -RFGY*RK9                                                      YAVAC  487
      *  COMPUTE ROLLING MOMENT                                                YAVAC  488
           RMR   =  ( RFGWDR - RFGWDL)*(RCOS75*RK10 + RCS57*RK11)              YAVAC  489
           +        ( RFGWUR - RFGWUL)*(RCCS75*RK10 + RCS57*RK11)              YAVAC  490
                 +RFGY* RK12                                                   YAVAC  491
                                                                               YAVAC  492
      *  COMPUTE TOTAL MOMENTS ABOUT ACTUAL C.G.                               YAVAC  493
                                                                               YAVAC  494
      *  COMPUTE TOTAL PITCHING MOMENT                                         YAVAC  495
           RMP =  RMP  - RFTZ*((CGFS - 346.6)/12.) + RFTX*((CGWL - 96.0)/12.)  YAVAC  496
      *  COMPUTE TOTAL YAWING MOMENT                                           YAVAC  497
           RMY =  RMY + RFTX*CGBL/12.  + RFTY*((CGFS - 346.6)/12.)             YAVAC  498
      *  COMPUTE TOTAL ROLLING MOMENT                                          YAVAC  499
           RMR = RMR -RFTZ*CGBL/12.0 - RFTY*((CGWL - 96.0)/12.0)               YAVAC  500
                                                                               YAVAC  501
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                  RETURN                                                    YAVAC     502
                  END                                                       YAVAC     503

         SYMBOLIC REFERENCE MAP (R=2)

 ENTRY POINTS        DEF LINE       REFERENCES
     1   RCS07           1            242       457

 VARIABLES        SN   TYPE                RELOCATION
  1750   A             REAL          ARRAY   FARRAY       REFS        22      5*26     10*33     10*45     10*57      9*69     14*80
                                                                 SC
  1434   ANOZ          REAL          ARRAY                REFS       135    DEFINED      203
  2345   CC3L          REAL                  FARRAY       REFS        26       453       455
  2344   CCES          REAL                  FARRAY       REFS        26       451       453
  2346   CCWL          REAL                  FARRAY       REFS        26       451       455
   132   D2R           REAL                  FARRAY       REFS        22       409       412       418       418
     0   E             REAL          ARRAY   FARRAY       REFS         8      2*22
   652   IRECHT        INTEGER                            REFS       390    DEFINED      230       231
   654   IROUAB        INTEGER                            REFS       275       276       277       279       280       281
                                                       DEFINED       274       275       276       277       279       280
  1360   NREFNM        INTEGER       ARRAY                REFS       135       301       310    DEFINED      150
  1356   NREFWN        INTEGER       ARRAY                REFS       135       322    DEFINED      150
  2234   PAMB          REAL                  FARRAY       REFS        26       387       389       392       395       398       401
                                                                 402       403       404
  3171   PDUCT         REAL                  FARRAY       REFS        33       393    DEFINED      241       352
   743   PEP           REAL          ARRAY                REFS        99       335       338       341       371       373       379
                                                                 380       392       393       384    DEFINED      192
  3373   PHOZRJS       REAL                  FARRAY       REFS        80       233       251
  1366   PHOZTAL       REAL          ARRAY                REFS       135    DEFINED      203
  3426   PO-J          REAL                  FARRAY       REFS        80       253       344       346       348       350
   745   POYP          REAL          ARRAY                REFS        99       332       367       369    DEFINED      192
  3427   PTAIC         REAL                  FARRAY       REFS        90       253       342
   733   PTAIDC        REAL                               REFS       351    DEFINED      342
  3243   RACE          REAL                  FARRAY       REFS        80       252       253       395       356       399       401
                                                                 402       403       404    DEFINED      251       252
  1375   RACETBL       REAL          ARRAY                REFS       135    DEFINED      203
  3241   RAE           REAL                  FARRAY       REFS        80       276       290       279       334
  3242   RADR          REAL                  FARRAY       REFS        80       277       289       328
  3244   RASE          REAL                  FARRAY       REFS        80    DEFINED      213
  3237   RAWDL         REAL                  FARRAY       REFS        80       278       288       337       374
  3247   RAWDR         REAL                  FARRAY       REFS        80       278       288       337       375
  3236   RAWUL         REAL                  FARRAY       REFS        80       278       288       340       376
  3246   RAWUR         REAL                  FARRAY       REFS        80       278       288       340       377
   651   RAY           REAL                               REFS       231       232       275       280       379
                                                       DEFINED       229       232
  3240   RAYS          REAL                  FARRAY       REFS        80       229
   725   RCOS5         REAL                               REFS       421       424    DEFINED      417
   731   RCOS7         REAL                               REFS       421       427    DEFINED      420
   723   RCOS720       REAL                               REFS       423       436    DEFINED      414
   732   RCOS75        REAL                               REFS     2*423       436      2*444    DEFINED      421
   720   RCOS8         REAL                               REFS       423       436    DEFINED      411
   734   RCS57         REAL                               REFS       429     2*440      2*444    DEFINED      427
   733   RCS75         REAL                               REFS     2*426       436      2*440    DEFINED      424
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        SUBROUTINE RCS07          74/175   OPT=2                                FTN 4.8+538          82/10/22. 15.12.52          PAGE    10

VARIABLES          SN    TYPE                    RELOCATION
   726   RDEG5             REAL                                      REFS        416        417     DEFINED      415
   727   RDEG7             REAL                                      REFS        419        420     DEFINED      418
   721   RDEG725           REAL                                      REFS        413        414     DEFINED      412
   716   RDEG2             REAL                                      REFS        410        411     DEFINED      409
  3234   REFW              REAL                         F.P. ARRAY   REFS         45        307     DEFINED      297
   751   REFWI3            REAL          ARRAY                       REFS         99        297     DEFINED      160
  3237   REFF              REAL                         F.P. ARRAY   REFS         45        316     DEFINED      310
   765   REFFI3            REAL          ARRAY                       REFS         99        310     DEFINED      172
  3210   REFT              REAL                         F.P. ARRAY   REFS         57        315     DEFINED      312
   777   REFTI3            REAL          ARRAY                       REFS         99        312     DEFINED      172
  3211   REFW              REAL                         F.P. ARRAY   REFS         57        315     DEFINED      314
  1017   REFWI3            REAL          ARRAY                       REFS         99        314     DEFINED      172
  3212   RETFW             REAL                         F.P. ARRAY   REFS         57        323     DEFINED      322
  1033   RETFWIP           REAL          ARRAY                       REFS         99        322     DEFINED      182
   672   RETT              REAL                                      REFS        323    DEFINED        319
  1355   RETTI3            REAL          ARRAY                       REFS         99        318     DEFINED      182
  3203   REUW              REAL                         F.P. ARRAY   REFS         45        306     DEFINED      293
  1075   REUWI3            REAL          ARRAY                       REFS         99        293     DEFINED      150
  3205   REWF              REAL                         F.P. ARRAY   REFS         45        306        307     DEFINED      301
  1111   REWFI3            REAL          ARRAY                       REFS        111        301     DEFINED      160
  3206   REWT              REAL                         F.P. ARRAY   REFS         45        306        307     DEFINED      305
  1123   REWTI3            REAL          ARRAY                       REFS        111        305     DEFINED      160
  3233   RFCF              REAL                         F.P. ARRAY   REFS         69        423        426        436     DEFINED      303
  3231   RFCP              REAL                         F.P. ARRAY   REFS         69        423        426        436     DEFINED      387
  3234   RFGWD             REAL                         F.P. ARRAY   REFS         80        396        423        426        436
                                                                  DEFINED      395        396
   713   RFGWDL            REAL                                      REFS        429        440        444     DEFINED      402
   712   RFGWD2            REAL                                      REFS        429        440        444     DEFINED      401
  3235   RFGWU             REAL                         F.P. ARRAY   REFS         80        399        423        426        436
                                                                  DEFINED      398        399
   715   RFGWUL            REAL                                      REFS        429        440        444     DEFINED      404
   714   RFGWU2            REAL                                      REFS        429        440        444     DEFINED      403
  3232   RFGY              REAL                         F.P. ARRAY   REFS         69        390        429        440        444
                                                                  DEFINED      389        390
  3152   RFTX              REAL                         F.P. ARRAY   REFS         26        451        453     DEFINED      236        426
  3153   RFTY              REAL                         F.P. ARRAY   REFS         33        453        455     DEFINED      234        429
  3164   RFTZ              REAL                         F.P. ARRAY   REFS         33        451        455     DEFINED      235        423
   671   REWTIMS           REAL                                      REFS        320    DEFINED        290
   632   RK10              REAL                                      REFS      2*440      2*444     DEFINED      213
   633   RK11              REAL                                      REFS        436      2*444     DEFINED      213
   634   RK12              REAL                                      REFS        444    DEFINED        213
   624   RK4               REAL                                      REFS        436    DEFINED        213
   625   RK5               REAL                                      REFS        436    DEFINED        213
   626   RK6               REAL                                      REFS        436      2*440     DEFINED      213
   627   RK7               REAL                                      REFS        436    DEFINED        213
   631   RK8               REAL                                      REFS        436    DEFINED        213
   631   RK9               REAL                                      REFS        440    DEFINED        213
  3214   RMEF              REAL                         F.P. ARRAY   REFS         57        355     DEFINED      335
  1143   RMEFI3            REAL          ARRAY                       REFS        111        335     DEFINED      192
  3213   RMET              REAL                         F.P. ARRAY   REFS         57        353     DEFINED      332
  1151   RMETA3            REAL          ARRAY                       REFS        111        332     DEFINED      192
  3215   RMEWD             REAL                         F.P. ARRAY   REFS         57        357     DEFINED      338
  1202   RMEWDI3           REAL          ARRAY                       REFS        111        338     DEFINED      192
  3216   RMEWU             REAL                         F.P. ARRAY   REFS         57        359     DEFINED      341
  1213   RMEWUI3           REAL          ARRAY                       REFS        111        341     DEFINED      192
  3166   RMP               REAL                         F.P. ARRAY   REFS         33        451     DEFINED      237        436        451
  3165   RMQ               REAL                         F.P. ARRAY   REFS         33        455     DEFINED      215        444        455
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VARIABLES       SN   TYPE          RELOCATION
 3157   DMY          REAL                    F.ARRAY    REFS        33       453   DEFINED      238       440       453
  732   RDCTOL       REAL                               REFS       379   DEFINED       374
  733   RDCTO2       REAL                               REFS       380   DEFINED       375
  675   RDCTE        REAL                               REFS       335       371   DEFINED      334
  673   RDCTRP       REAL                               REFS       330   DEFINED       328
  734   RDCTUL       REAL                               REFS       383   DEFINED       376
  735   RDCTUR       REAL                               REFS       386   DEFINED       377
  676   RDCTWD       REAL                               REFS       338       373   DEFINED      337
  677   RDCTWU       REAL                               REFS       341       392   DEFINED      340
  674   RDCTY        REAL                               REFS       331   DEFINED       329
 3202   RDD          REAL                    F.ARRAY    REFS        45       357       305      401       402
                                                     DEFINED       350
 3174   RDDP3        REAL                    F.ARRAY    REFS        33       350   DEFINED      307
 3230   RDE          REAL                    F.ARRAY    REFS        45       355       392  DEFINED       346
 3175   RDEP3        REAL                    F.ARRAY    REFS        33       346   DEFINED      315
 1352   RDEWT1       REAL          ARRAY                REFS       135       322   DEFINED      150
  673   RDMFDM       INTEGER                            REFS        13       335       338      341       371       373       379
                                                           380       382       383       386  DEFINED       150
  715   RDMTCM       INTEGER       ARRAY                REFS        13       111       332      367       369
                                                     DEFINED       150
 1216   RDRIWI       REAL          ARRAY                REFS       111       322   DEFINED      320       321
 1220   RDRTMF       REAL          ARRAY                REFS       111       332       367      369  DEFINED       330       331
 1222   RDRWD        REAL          ARRAY                REFS       111       297       314  DEFINED       295       296
 1224   RDRWDU       REAL          ARRAY                REFS       123       297       314  DEFINED       150
 1230   RDRWF        REAL          ARRAY                REFS       123       301       310  DEFINED       299       300
 1232   RDRWFP       REAL          ARRAY                REFS       123       301       310  DEFINED       160
 1234   RDRWT        REAL          ARRAY                REFS       123       305       312      318  DEFINED       303       304
 1240   RDRWTP       REAL          ARRAY                REFS       123       305       312      318  DEFINED       160
 1244   RDRWU        REAL          ARRAY                REFS       123       293   DEFINED      291       292
 1245   RDRWUP       REAL          ARRAY                REFS       123       293   DEFINED      150
 3177   RDT          REAL                    F.ARRAY    REFS        45       353       387      389  DEFINED       344
 3176   RDTP3        REAL                    F.ARRAY    REFS        45       344   DEFINED      323
 3201   RDU          REAL                    F.ARRAY    REFS        45       359       398      403       404
                                                     DEFINED       348
  666   RPHAA        REAL                               REFS       282       292       296      300       304       321
                                                     DEFINED       281       282
 3173   RPUP3        REAL                    F.ARRAY    REFS        33       348   DEFINED      306
  737   RRWN4        INTEGER       ARRAY                REFS        13       123       293      297       314
                                                     DEFINED       150
  741   RRWTM4       INTEGER       ARRAY                REFS        13       123       305      312       318
                                                     DEFINED       150
  725   RSIN5        REAL                               REFS       427   DEFINED       416
  730   RSIN7        REAL                               REFS       424   DEFINED       417
  722   RSIN7P5      REAL                               REFS       426       436   DEFINED      413
  717   RSIN8        REAL                               REFS       426       436   DEFINED      410
  701   RTEMP        REAL                               REFS       353       355       357      359       387       389       393
                                                     DEFINED       351       385
  670   RTTEMP       REAL                               REFS       303   DEFINED       289
  653   RUBLMAX      REAL                               REFS     2*362   DEFINED       253
 3220   RVE          REAL                    F.ARRAY    REFS        57       360   DEFINED      355
 3217   RVT          REAL                    F.ARRAY    REFS        57       360   DEFINED      353
  657   RUTEMP       REAL                               REFS       200       291       295  DEFINED       288
 3170   RWEPT        REAL                    F.ARRAY    REFS        33       362   DEFINED      240       340       342
 3221   RWNP         REAL                    F.ARRAY    REFS        57       360   DEFINED      357
 3222   RWU          REAL                    F.ARRAY    REFS        69       360   DEFINED      359
 1252   RXPETA       REAL          ARRAY                REFS       123       367   DEFINED      192
 3224   RXPETD       REAL                    F.ARRAY    REFS        69       387   DEFINED      367
```

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      SUBROUTINE RCS07         74/175  OPT=2                          FTN 4.8+538         82/10/22. 15.12.52        PAGE     12

VARIABLES       SN   TYPE              RELOCATION
 3226  RXVF          REAL                     FARRAY      REFS        69       393    DEFINED      371
 1333  RXVFIAO       REAL           ARRAY                 REFS       135       371    DEFINED      203
 3227  RXVHD         REAL                     FARRAY      REFS        69       395    DEFINED      373
  706  RXVHDL        REAL                                 REFS       402   DEFINED       379
  707  RXVHC2        REAL                                 REFS       401   DEFINED       380
 1311  RXVHCT4       REAL           ARRAY                 REFS       135       373       379       380    DEFINED      203
 3230  RXVHU         REAL                     FARRAY      REFS        69       398    DEFINED      382
  710  RXVHIH        REAL                                 REFS       406   DEFINED       393
  711  RXVHIR        REAL                                 REFS       409   DEFINED       396
 1317  RXVHIT4       REAL           ARRAY                 REFS       135       382       383       384    DEFINED      203
 1335  RXYPTAO       REAL           ARRAY                 REFS       135       369    DEFINED      293
 3225  RXYPTG        REAL                     FARRAY      REFS        69       389    DEFINED      369
  665  TEMP          REAL                                 REFS       279   DEFINED       278

EXTERNALS            TYPE    ARGS       REFERENCES
       COS           REAL      1 LIBRARY   411       414       417       420
       F1A           REAL      4           335       338       341       371       373       379       380       382       383
                                           386
       F2A           REAL      4           293       257       301       305       310       312       314       318       322
                                           332       367
       F2C           REAL      4           363
       SIN           REAL      1 LIBRARY   410       413       416       419
       SQRT          REAL      1 LIBRARY   263

INLINE FUNCTIONS     TYPE    ARGS        DEF LINE  REFERENCES
       ABS           REAL      1  INTRIN             232
       AMAX1         REAL      0  INTRIN             252       282
       AMIN1         REAL      0  INTRIN             252       282

STATEMENT LABELS                   DEF LINE   REFERENCES
   17  6                              247        233

COMMON BLOCKS    LENGTH
      FARRAY       2000

STATISTICS
  PROGRAM LENGTH                  1696B       974
  CM LABELED COMMON LENGTH        3720B      2000
        160000B CM USED
```

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SUBROUTINE RECO7      74/175  OPT=2                FTN 4.8+538       82/10/22. 15.12.52       PAGE    1

      SUBROUTINE RECO7                                                      YAVAC     504
                                                                            YAVAC     505
                                                                            YAVAC     506
                                                                            YAVAC     507
                                                                            YAVAC     508
                                                                            YAVAC     509
      COMMON / FARRAY / F(1001)                                             YAVAC     510
                                                                            YAVAC     511
                                                                            YAVAC     512
*                                                                           YAVAC     513
*  EQUIVALENCE STATEMENTS                                                   YAVAC     514
*                                                                           YAVAC     515
      EQUIVALENCE  (A,F(1001))                                              YAVAC     516
                                                                            YAVAC     517
      EQUIVALENCE                                                           YAVAC     518
     .   (YTOP     , F(  22))                                               YAVAC     519
     ., (S         ,F(100))                                                 YAVAC     520
     ., (DELTO     ,F(119))                                                 YAVAC     521
     ., (INITIAL   ,F(153))                                                 YAVAC     522
      EQUIVALENCE                                                           YAVAC     523
     .   (3A       ,A(  37))                                                YAVAC     524
     ., (XYS       ,A(  52))                                                YAVAC     525
     ., (XZR       ,A(  53))                                                YAVAC     526
     ., (2D        ,A(140))                                                 YAVAC     527
     ., (3D        ,A(141))                                                 YAVAC     528
     ., (2D        ,A(142))                                                 YAVAC     529
     ., (2         ,A(147))                                                 YAVAC     530
     ., (3         ,A(148))                                                 YAVAC     531
     ., (?         ,A(149))                                                 YAVAC     532
     ., (DS        ,A(313))                                                 YAVAC     533
     ., (DLA       ,A(314))                                                 YAVAC     534
     ., (DKA       ,A(315))                                                 YAVAC     535
     ., (STLON     ,A(479))                                                 YAVAC     536
     ., (STLAT     ,A(470))                                                 YAVAC     537
     ., (REDAL     ,A(490))                                                 YAVAC     538
     ., (RIMLON    ,A(491))                                                 YAVAC     539
     ., (RIMLAT    ,A(492))                                                 YAVAC     540
     ., (RIMDIR    ,A(493))                                                 YAVAC     541
      EQUIVALENCE                                                           YAVAC     542
     .   (TEMPIR   ,A(486))                                                 YAVAC     543
     ., (RATOER    ,A(487))                                                 YAVAC     544
     ., (REDALT    ,A(488))                                                 YAVAC     545
     ., (SASLON    ,A(495))                                                 YAVAC     546
     ., (SASLAT    ,A(496))                                                 YAVAC     547
     ., (SASDIR    ,A(497))                                                 YAVAC     548
     ., (2CSE      ,A(498))                                                 YAVAC     549
     ., (DHID      ,A(503))                                                 YAVAC     550
     ., (OLAD      ,A(505))                                                 YAVAC     551
     ., (ORAD      ,A(506))                                                 YAVAC     552
     ., (DSP       ,A(507))                                                 YAVAC     553
     ., (Z2HOP     ,A(511))                                                 YAVAC     554
     ., (FAWC      ,A(512))                                                 YAVAC     555
      EQUIVALENCE                                                           YAVAC     556
     .   (STLONC   ,A(526))                                                 YAVAC     557
     ., (STLAPC    ,A(527))                                                 YAVAC     558
     ., (HOPC      ,A(528))                                                 YAVAC     559
     ., (ELOPC     ,A(523))                                                 YAVAC     560
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     .,(ILAPC   ,A(539))                                        YAVAC    561
      EQUIVALENCE                                               YAVAC    562
     . (PSSAD   ,A(564))                                        YAVAC    563
     .,(PGAIN   ,A(573))                                        YAVAC    564
     .,(SGAIN   ,A(590))                                        YAVAC    565
     .,(AYGN    ,A(591))                                        YAVAC    566
     .,(DGAIN   ,A(592))                                        YAVAC    567
      EQUIVALENCE                                               YAVAC    568
     . (NBQDS   ,A(613))                                        YAVAC    569
     .,(LOOPE   ,A(627))                                        YAVAC    570
     .,(DARCSUL ,A(695))                                        YAVAC    571
     .,(NARCSDL ,A(696))                                        YAVAC    572
     .,(NUPCSF  ,A(698))                                        YAVAC    573
     .,(NARCS   ,A(697))                                        YAVAC    574
     .,(NUPCSA  ,A(699))                                        YAVAC    575
     .,(DPPCSU  ,A(703))                                        YAVAC    576
     .,(DARCSDR ,A(704))                                        YAVAC    577
     .,(TSQ     ,A(737))                                        YAVAC    578
     .,(PELIM   ,A(738))                                        YAVAC    579
     .,(DLAD    ,A(740))                                        YAVAC    580
     .,(SNTL    ,A(741))                                        YAVAC    581
     .,(DRAD    ,A(742))                                        YAVAC    582
     .,(APTS    ,A(743))                                        YAVAC    583
     .,(YRCS    ,A(744))                                        YAVAC    584
      EQUIVALENCE                                               YAVAC    585
     . (YRATE   ,A(745))                                        YAVAC    586
     .,(OPTPCSF ,A(746))                                        YAVAC    587
     .,(OPTPCSA ,A(747))                                        YAVAC    588
     .,(ANY     ,A(749))                                        YAVAC    589
     .,(AYHUD   ,A(748))                                        YAVAC    590
     .,(DELGEAR ,A(803))                                        YAVAC    591
     .,(IWINDW  ,A(900))                                        YAVAC    592
     .,(VCAL    ,A(920))                                        YAVAC    593
*                                                               YAVAC    594
*     DIMENSION STATEMENTS                                      YAVAC    595
*                                                               YAVAC    596
      DIMENSION                                                 YAVAC    597
     .          A(1000)                                         YAVAC    598
     .,         D300P(2)                                        YAVAC    599
     .,         RTBL(8)                                         YAVAC    600
     .,         RTBL1(8)                                        YAVAC    601
     .,         APTBL(2)                                        YAVAC    602
*                                                               YAVAC    603
*     DATA STATEMENTS                                           YAVAC    604
*                                                               YAVAC    605
      DATA                                                      YAVAC    606
     .  RTBL / 250.0 , 275.0 , 300.0 , 350.0 , 500.0 , 600.0 , 700.0 ,   YAVAC    607
     .          750.0 / ,                                       YAVAC    608
     .  RTBL1/ 15.0 , 11.6 , 10.0 , 7.6 , 3.0 , 1.2 , .6 , 0.0 /,        YAVAC    609
     .  APTBL / 250.0 , 750.0 /                                 YAVAC    610
                                                                YAVAC    611
                                                                YAVAC    612
                                                                YAVAC    613
                                                                YAVAC    614
                                                                YAVAC    615
      IF(INITIAL .EQ. 0) GO TO 999                              YAVAC    616
                                                                YAVAC    617
```

```
*         READY RAMP FOR STABILATOR ACTUATOR    --  1/(1+0.025S)

          TEMP1    = DELTO / 0.025
          GDHT01   = EXP(-TEMP1)
          TEMP2    = 1.0 - GDHT01
          GDHT02   = 1.0 - (1.0/TEMP1)*TEMP2
          GDHT03   = TEMP2 - GDHT02

          RLGHTD = 60.0 * DELTO

*         READY RAMP FOR AILERON ACTUATOR       --  1/(1+0.013S)

          TEMP1    = DELTO / 0.013
          GDAD1    = EXP(-TEMP1)
          TEMP2    = 1.0 - GDAD1
          GDAD2    = 1.0 - (1.0/TEMP1)*TEMP2
          GDAD3    = TEMP2 - GDAD2

          RLOAD    = 80.0 * DELTO

*         READY FOR FRONT RCS SERVO
          TEMP1 = DELTO / .0175
          RCZ1 = EXP(-TEMP1)
          TEMP2 = 1.0 - RCZ1
          RCZ2 = 1.0 - (1.0/TEMP1)*TEMP2
          RCZ3 = TEMP2 - RCZ2
          RCRTL = 25.0 * DELTO
*         READY FOR YAW SERVOACTUATOR
          TEMP1 = DELTO / .0175
          YRCZ1 = EXP(-TEMP1)
          TEMP2 = 1.0 - YRCZ1
          YRCZ2 = 1.0 - (1.0/TEMP1)*TEMP2
          YRCZ3 = TEMP2 - YRCZ2
          YRCRTL = 35.0 * DELTO
*         TUSTIN FOR P FEEDBACK - (1+.781S)/(1+1.29S)
          DT02 = DELTO / 2.
          TEMP = 1.29 + DT02
          PZ1 = (1.29 - DT02) / TEMP
          PZ2 = (.781 + DT02) / TEMP
          PZ3 = -(.781 - DT02) / TEMP
*         TUSTIN FOR AYACC FEEDBACK - (1+0.25S)/(1+0.125S)
          TEMP = .125 + DT02
          AYZ1 = (.125 - DT02) / TEMP
          AYZ2 = (.25 + DT02) / TEMP
          AYZ3 = -(.25 - DT02) / TEMP
*         TUSTIN FOR P FEEDBACK -  S/(1+3.11S)
          TEMP = 3.11 + DT02
          PZ1 = (3.11 - DT02) / TEMP
          PZ2 = 1. / TEMP
          PZ3 = -1. / TEMP
*         TUSTIN FOR STAT FILTER(RPUF) - (.58/1+.0435S)
          TEMP = .0435 + DT02
          STLZ1 = (.0435 - DT02) / TEMP
          STLZ2 = STLZ3 = (.58*DT02) / TEMP
*         TUSTIN FOR Q LONG. STRUCTURAL FILTERS - (1/1+.0222S)
          TEMP = .0222 + DT02
          QZ1 = (.0222 - DT02) / TEMP
```

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```
      D22 = D23 * DT02 / TEMP
*     2 (JNC. FILTER - (1/1+.0448S)
      TEMP = .0449 + DT02
      D211 = (.0448 - DT02) / TEMP
      C222= D233 * DT02 / TEMP
*     TUSTIN FOR P FEEDBACK STRUCTURAL FILTER - (1/1+ .0435S)
      TEMP = .0435 + DT02
      R021 = (.0435 - DT02) / TEMP
      R022 = R023 * DT02 / TEMP
*     TUSTIN FOR P FEEDBACK STRUCTURAL FILTER - (1/1+ .0164S)
      TEMP = .0164 + DT02
      PF21 = (.0164 - DT02) / TEMP
      PF22 = PF23 * DT02 / TEMP
*     TUSTIN FOR AYACC FEEDBACK STRUCTURAL FILTER - (1/S2+4S+164)*164
      DTS004 = DT02 * DT02
      TEMP = 1. + 4.*DT02 + 164.*DTS004
      AY211 = (2. - 328.*DTS004) / TEMP
      AY222 = -(1. - 4.*DT02 + 164.*DTS004) / TEMP
      AY233 = (164. * DTS004) / TEMP
      AY244 = (328. * DTS004) / TEMP
      AY255 = AY233

*     TUSTIN FOR AYACC NOTCH FILTER
      TEMP= 1.+20.1062*DT02+404.26*DTS004
      AYNF1= 2.*(1.-404.26*DTS004)/TEMP
      AYNF2= -(1.-20.1062*DT02 +404.26*DTS004)/TEMP
      AYNF3= (1.+2.01062*DT02+404.26*DTS004)/TEMP
      AYNF4= (2.*404.26*DTS004-2.)/TEMP
      AYNF5= (1.-2.01062*DT02+404.26*DTS004)/TEMP

*     MISCELLANEOUS GAINS

      TCIMI=0.56
      TRATDIR = 0.50
      TRINDIR = 0.0
      CHIDP   = 0.0
      DHIDIP  = 0.0
      CCSF2 = 0.0
      TGOP = 0.0
      PELATP = 0.0
      PP = 0.0
      AY2 = 0.0
      AYACCP = 0.0
      RO2 = 0.0
      RP = 0.0
      YRDIP = 0.0
      YRCSP = 0.0
      YRSP = 0.0
      DLSDP = 0.0
      DLSTP = 0.0
      PRATP = 0.0
      RRATP = 0.0
      RRTP = 0.0
      AYTP = 0.0
      AYIPP = 0.0
      AYP2 = 0.0
      FILTOP = 0.0
```

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            DELEP = 0.0
            LIDP = 0.0
            STGOP = 0.0
            STGO1P = 0.0
            STGO2P = 0.0
            AYIFP = 0.0
            AYIFPP = 0.0
            CSFLAT2 = 0.0
            OPTRCSF = OPTRCSA = 0.0
            DSSIN = .346
            ECSIN = .669
            DSPIN = .22
            AYGN = .83
     940  CONTINUE



C LONGITUDINAL SYSTEM

C    TRIM
            TRIMLON = 0.1129*TLONC - 3.76

C    TOTAL STICK DEFLECTION, IN.
            STLON = .1129*STLONC - 3.76
            STLON = AMIN1(7.53,AMAX1(STLON,-3.76))

C    MANUAL STABILATOR ANGLE, DEG.
            DS = 2.75-(1.759274-(.02038152-.01149626*STLON)*STLON)*STLON
            DS = AMIN1(11.25,AMAX1(DS,-10.25))

C    STABILATOR RCS FWD
            DSRCSF = 2.12647 * (STLON - .5)
C    Q  FEEDBACK
            STGO = QGAIN * Q * RTOD
            STGO1 = Q71*STGO1P + Q72*STGO + Q73*STGOP
            TGO = Q711*STGO2P + Q722*STGO1 + Q733*STGO1P
            IF(VCAL .GT. 250.) TGO = STGO1 = 0.0
            IF(ISASLON.EQ.0) TGO=STGO1=0.0
            IF(MODE .EQ. 0 .A. DELGEAR.LT. .9) TGO = STGO1 = 0.0
            STGO1P = STGO1
            STGOP = STGO
            STGO2P = TGO
C    FRONT RCS SERVO
            RCSF = RCZ1*RCSFP + RCZ2*TGO + RCZ3*TGOP
            IF((RCSF-RCSFP) .GT. RCRTL) RCSF = RCSFP + RCRTL
            IF((RCSFP-RCSF) .GT. RCRTL) RCSF = RCSFP - RCRTL
            RCSFP = RCSF
            TGOP = TGO
C    GAIN (1.205)
            RCSF = 1.205 * RCSF
            IF(RCSF.GE.-.03 .A. RCSF.LE. .03) RCSF = 0.0
            RCSF = AMIN1(2.08,AMAX1(RCSF,-2.08))
C    TOTAL STAB RCS FWD
            DURCSF = DSRCSF - RCSF
```

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```
      DHRCSF = AMIN1(7.23,AMAX1(DHRCSF,0.))
      DELRCSF = (DHRCSF - DHRCSFP) / DELTD
      DHRCSFP = DHRCSF
      TGO = AMIN1(1.5,AMAX1(TGO,-1.5))
      DHEDT = DS + TGO

*  ACTUATOR MODEL AND RATE LIMIT
      DHTD   = CONTD1*DHTDP + CONTD2*DHTDT + CONTD3*DHTDIP
      IF ((DHTD - DHTDP) .GT. RLDHTD) DHTD = DHTDP + RLDHTD
      IF ((DHTDP - DHTD) .GT. RLDHTD) DHTD = DHTDP - RLDHTD
      DHTDP  = DHTD
      DHTDIP = DHTDT

      DHTD = AMIN1(12.75,AMAX1(DHTD,-11.75))

*  FCS AFT . STAB.
      DHRCSA = 1.085*(DHTD-2.0)
      DHRCSA = AMIN1(9.68,AMAX1(DHRCSA,0.0))
      DELRCSA = (DHRCSA - DHRCSAP) / DELTD
      DHRCSAP = DHRCSA


* LATERAL SYSTEM

*  TRIM
      TRIMLAT=TLAPC*0.3147

*  COMPUTE LATERAL STICK DEFLECTION, IN.
      STLAT = .042 * STLAPC
      STLAT = AMIN1 (4.2,AMAX1(STLAT,-4.2))

*  LEFT AND RIGHT AILERON POSITIONS
      DLA=3.4383*STLAT-0.4106*STLAT*STLAT+0.0409*STLAT*STLAT*STLAT
      DLA=AMIN1(10.,AMAX1(DLA,-25.))
      DRA=-3.4383*STLAT-0.4106*STLAT*STLAT-0.0409*STLAT*STLAT*STLAT
      DRA=AMIN1(10.,AMAX1(DRA,-25.))

* DIRECTIONAL SYSTEM

*  TRIM
      TRIMDIR = TRIMDIR + TRATDIR*TIMTIR*DELTD
      TRIMDIR = AMIN1(TDTRL,AMAX1(TRIMDIR,-TDTRL))

*  COMPUTE RUDDER PEDAL DEFLECTION, IN.
      PEDAL = RUDPC*.0212

*  TOTAL PEDAL, IN.
      PEDALT = PEDAL + TRIMDIR

*  TOTAL RUDDER, DEG.
      PEDALT = AMIN1(2.12,AMAX1(PEDALT,-2.12))
*  RUDDER DEFLECTION WITH GEARING
      DRUDD = -7.07 * PEDALT
*  LIMIT RUDDER PEDAL TRAVEL AS A FUNCTION OF AIRSPEED
      IF(VCAL .LT. 250.0) GO TO 200
```


C-3

```
      CALL FS2CH(VCAL,RTBL,9,(PUF,1)
      RUDLIM = FIN(VCAL,9,POTBL,PTPL))
      PRIDD = AMIN1(RUDLIM,AMAX1(DPLFP,-RUDLIM))
  200 CONTINUE
*   FEEDBACK VARIABLES
      PFLAT = PZ1*PFLATP + PZ2*P*PTCC + PZ3*PP
      PFLATP = PFLAT
      PP = P + RTDD
      PFLT = PGAIN * PFLAT
      PFLTD = PFZ1*PFLTOP + PFZ2*PFLT + PFZ3*PFLTP
      IF(VCAL .GT. 250.) PFLTD = 0.0
      IF(ISASLAT.EQ.0) PFLTD = 0.0
      IF(IMODE .EQ. 0 .A. DELFAP.LT. .9) PFLTD = 0.0
      PFLTOP = PFLTD
      PFLTP = PFLT
      PFLTD = AMIN1(2.,AMAX1(PFLTD,-2.))
*   AYACC CALC.
      AYACC = AYB - 10.353*(RD+(P*Q)) + 1.5*(PD-(Q*R))
      ANY   = AYACC / G

*   COMPUTE ACCELERATION FOR RUDDER PEDAL SHAKERS AND INPUT TO HUD
*   ASSUME SIGNALS COME FROM UNDER PILOTS SEAT

      AYHUD =(AYB   + 10.353*(RD + (P*Q)))/ G
*   AYACC FILTER AND GAIN
      AY = AYZ1*AYP + AYZ2*AYACC + AYZ3*AYACCP
      AYP = AY
      AYACCP = AYACC
      AY = AYGN * AY
*AYACC NOTCH FILTER
      AYNF= AYNF1*AYNFP + AYNF2*AYNFPP + AYNF3*AY + AYNF4*AYP + AYNF5*AY
     .PP
*AYACC STRUCTURAL FILTER
      AYD = AYZ11*AYDP + AYZ22*AYDPP + AYZ33*AYNF + AYZ44*AYNFP + AYZ55*
     .AYNFPP
      AYDPP = AYDP
      AYDP = AYD
      AYPP = AYP
      AYP = AY
      AYNFP = AYNF
      AYNFPP = AYNFP
*   R FILTER AND GAIN
      RD = RZ1*RDP + RZ2*R*RTDD + RZ3*RP
      RDP = RD
      RP = R + RTDD
      RQ = RGAIN*RD
      RTD = RDZ1*RTDP + RDZ2*RQ + RDZ3*RQIP
      RQIP = RQ
      RTDP = RTD
*   SUM R AND AYD
      AYR = RTD + AYD
*   YAW RCU SERVO CALCS.
      GSTLAT = 3.0E + STLAT
      YRCU =        STLZ1*YRCUP + STLZ2*GSTLAT + STLZ3*GSTLATP
      YRCUP = YRCU
      GSTLATP = GSTLAT
      YRS = AYR - YRCU
```

```
      IF(VCAL.GT.250.0.O.ISASDIR.EQ.0) YRS=0.0
      IF(IWTOSW.EQ.1) YRS=0.0
      IF(IMODE.EQ.0.A.DELCFA9.LT.0.5) YRS=0.0
      YRS=AMIN1(5.,AMAX1(YRS,-5.))
      YRCS = YRCZ1*YRCSP + YRCZ2*YRS + YRCZ3*YRSP
      IF((YRCS-YRCSP).GT.YRCRTL) YRCS = YRCSP+YRCRTL
      IF((YRCSP-YRCS).GT. YRCRTL) YRCS = YRCSP - YRCRTL
      YRATE = (YRCS - YRCSP) / DELTC
      YRCSP = YRCS
      YRSP = YRS
      DYRCS = YRCS + DRUDD
      DRRCS = .35 * DYRCS
      DRRCS = AMIN1(3.5,AMAX1(DRRCS,-3.5))
*   AILERONS LEFT
      DLAT = DLA - DELTD
      DLAD = GDAD1*DLADP + GDAD2*DLAT + GDAD3*DLATP
      IF((DLAD-DLADP).GT.RLDAD) DLAD=DLADP+RLDAD
      IF((DLADP-DLAD).GT.RLDAD) DLAD=DLADP-RLDAD
      ARTL = (DLAD - DLADP) / DELTD
      DLADP = DLAD
      DLATP = DLAT
      DLAD = AMIN1(12.,AMAX1(DLAD,-27.))
      DLAD=DLAD+DROOP(1)
      DARCSDL = .778 * DLAD
      DARCSDL = AMIN1(5.05,AMAX1(DARCSDL,0.))
      DARCSUL = (DLAD+10.5) * .477
      DARCSUL = AMIN1(0.,AMAX1(DARCSUL,-3.))
      DARCSUL = ABS(DARCSUL)
*   AILERONS RIGHT
      DRAT = DRA + DELTD
      DRAD = GDAD1*DRADP + GDAD2*DRAT + GDAD3*DRATP
      IF((DRAD-DRADP).GT. RLDAD) DRAD = DRADP + RLDAD
      IF((DRADP-DRAD).GT. RLDAD) DRAD = DRADP - RLDAD
      ARTR = (DRAD - DRADP) / DELTD
      DRADP = DRAD
      DRATP = DRAT
      DRAD = AMIN1(12.,AMAX1(DRAD,-27.))
      DRAD=DRAD+DROOP(2)
      DARCSDR = .778 * DRAD
      DARCSDR = AMIN1(5.05,AMAX1(DARCSDR,0.))
      DARCSUR = (DRAD+10.5) * .477
      DARCSUR = AMIN1(0.,AMAX1(DARCSUR,-3.))
      DARCSUR = ABS(DARCSUR)

      DAD = (DLAD - DRAD) / 2.


      RETURN
      END
```

SYMBOLIC REFERENCE MAP (R=2)

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     SUBROUTINE PEC07       74/175  OPT=2                    FTN 4.8+538       82/10/22. 15.12.52       PAGE    9

ENTRY POINTS      DEF LINE      REFERENCES
    1  PEC07          1          449

VARIABLES        SN   TYPE              RELOCATION
  1260  A             REAL        ARRAY    F.P.ARRAY   REFS    13     10*20     13*39      5*53      5*59     16*65     8*82
                                                                54
  3323  AMY           REAL                 FARRAY     REFS    82    DEFINED     361
  3314  AREL          REAL                 FARRAY     REFS    65    DEFINED     419
  3316  AREF          REAL                 FARRAY     REFS    65    DEFINED     433
  1260  AY            REAL                            REFS   369      371       373       391    DEFINED     368       371
  1257  AYACC         REAL                            REFS   361      368       370    DEFINED      360
  1216  AYACCP        REAL                            REFS   368    DEFINED     214       370
  2033  AYB           REAL                 FARRAY     REFS    20      360       366
  3354  AYGN          REAL                 FARRAY     REFS    59      371    DEFINED      241
  3324  AYHUD         REAL                 FARRAY     REFS    82    DEFINED     366
  1251  AYNF          REAL                            REFS   376      382    DEFINED      373
  1242  AYNFP         REAL                            REFS   373      376       383    DEFINED      234       382
  1243  AYNFPP        REAL                            REFS   373      376    DEFINED      235       383
  1231  AYNF1         REAL                            REFS   373    DEFINED     196
  1232  AYNF2         REAL                            REFS   373    DEFINED     197
  1233  AYNF3         REAL                            REFS   373    DEFINED     198
  1234  AYNF4         REAL                            REFS   373    DEFINED     199
  1235  AYNF5         REAL                            REFS   373    DEFINED     200
  1252  AYP           REAL                            REFS   379      393    DEFINED      376
  1231  AYPP          REAL                            REFS   376      378    DEFINED      225       379
  1232  AYPPP         REAL                            REFS   376    DEFINED     226       378
  1215  AYR           REAL                            REFS   368      373       380    DEFINED      213       369       381
  1233  AYRP          REAL                            REFS   373    DEFINED     227       380
  1265  AY2           REAL                            REFS   399    DEFINED     393
  1145  AY21          REAL                            REFS   369    DEFINED     157
  1174  AY211         REAL                            REFS   376    DEFINED     188
  1147  AY22          REAL                            REFS   369    DEFINED     158
  1175  AY222         REAL                            REFS   376    DEFINED     189
  1150  AY23          REAL                            REFS   368    DEFINED     159
  1176  AY233         REAL                            REFS   197      376    DEFINED      190
  1177  AY244         REAL                            REFS   376    DEFINED     191
  1200  AY255         REAL                            REFS   376    DEFINED     192
  2034  A2D           REAL                 FARRAY     REFS    20
  1314  B2TAB         REAL        ARRAY               REFS    04      344    DEFINED      103
  2742  DAD           REAL                 FARRAY     REFS    39    DEFINED     444
  3237  DAPCSDL       REAL                 FARRAY     REFS    65      424    DEFINED      423       424
  3247  DAPCSDR       REAL                 FARRAY     REFS    65      439    DEFINED      438       439
  3236  DAPCSUL       REAL                 FARRAY     REFS    65      426       427    DEFINED      425       426       427
  3246  DAPCSUR       REAL                 FARRAY     REFS    65      441       442    DEFINED      440       441       442
  3532  DELCCAC       REAL                 FARRAY     REFS    82      270       355       402
   156  DELTD         REAL                 FARRAY     REFS    15      117       123       127       133       136       141
                                                               143      148       150       287       304       328       407       418
                                                               433
  3242  DHPCSA        REAL                 FARRAY     REFS    65      303       304       305    DEFINED     302       303
  1252  DHPCSAP       REAL                            REFS   304    DEFINED     305
  3251  DHPCSS        REAL                 FARRAY     REFS    65      286       287       288    DEFINED     285       286
  1253  DHPCSFP       REAL                            REFS   287    DEFINED     288
  2236  DHTD          REAL                 FARRAY     REFS    30      294       295       296       299       302
                                                          DEFINED    293      294       295       229
  1231  DHTDT         REAL                            REFS   293      297    DEFINED      230
  1210  DHTDTP        REAL                            REFS   293    DEFINED     209       207
  1207  DHTDP         REAL                            REFS   293     2*294     2*295    DEFINED     207       296
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        SUBROUTINE DECOD       74/175  OPT=2                     FTN 4.8+536      82/10/22. 15.12.52      PAGE   10

VARIABLES      SN   TYPE              RELOCATION
  2441   DLA         REAL                   FARRAY   REFS     20     320     414  DEFINED     319     320
  2740   DLAD        REAL                   FARRAY   REFS     39     444 DEFINED     422
  1222   DLAT        REAL                            REFS    415     420 DEFINED     414
  1225   DLATP       REAL                            REFS    415 DEFINED     221     420
  3313   DLAC        REAL                   FARRAY   REFS     65     416     417     418     419     421     422
                                                             423     425 DEFINED     415     416     417     421
  1224   DLADF       REAL                            REFS    415   2*416   2*417     418 DEFINED     220     419
  2442   DPA         REAL                   FARRAY   REFS     20     322     429 DEFINED     321     322
  2741   DPAD        REAL                   FARRAY   REFS     39     444 DEFINED     437
  1223   DPAT        REAL                            REFS    430     435 DEFINED     429
  1227   DPATP       REAL                            REFS    430 DEFINED     223     435
  3316   DPAC        REAL                   FARRAY   REFS     65     431     432     433     434     436     437
                                                             438     440 DEFINED     430     431     432     436
  1226   DPADF       REAL                            REFS    430   2*431   2*432     433 DEFINED     222     434
  3121   DRDHO       REAL           ARRAY   FARRAY   REFS     65      94     422     437
  3243   DRDCS       REAL                   FARRAY   REFS     65     412 DEFINED     411     412
  3322   DRTECSA     REAL                   FARRAY   REFS     82 DEFINED     237     304
  3321   DRTECSE     REAL                   FARRAY   REFS     82 DEFINED     237     287
  2750   DRUDD       REAL                   FARRAY   REFS     39     345     410 DEFINED     340     345
  2440   DS          REAL                   FARRAY   REFS     20     260     290 DEFINED     259     260
  1245   DSRCSE      REAL                            REFS    285 DEFINED     263
  1141   DT02        REAL                            REFS    151     152     153     154     156     157     158
                                                             159     161     162     166     167     168     170     171
                                                             172     174     175     176     178     179     180     182
                                                             183     194   2*186     187     189     195     197     198
                                                             200 DEFINED     150
  1173   DTS204      REAL                            REFS    187     188     199     190     191     195     196
                                                             197     198     199     209 DEFINED     186
  1221   DYRCS       REAL                            REFS    411 DEFINED     410
     0   E           REAL           ARRAY   FARRAY   REFS      7      13    4*15
  2756   ENUG        REAL                   FARRAY   REFS     39
   143   G           REAL                   FARRAY   REFS     15     361     366
  1125   GDAD1       REAL                            REFS    129     415     430 DEFINED     128
  1126   GDAD2       REAL                            REFS    131     415     430 DEFINED     130
  1127   GDAD3       REAL                            REFS    415     430 DEFINED     131
  1120   GDUTD1      REAL                            REFS    119     293 DEFINED     118
  1122   GDUTD2      REAL                            REFS    121     293 DEFINED     120
  1123   GDUTD3      REAL                            REFS    293 DEFINED     121
  1266   GSELAT      REAL                            REFS    396     398 DEFINED     395
  1246   GSELATP     REAL                            REFS    396 DEFINED     236     398
  3132   IMODE       INTEGER                FARRAY   REFS     65     270     355     402
   230   INITIAL     INTEGER                FARRAY   REFS     15     113
  1253   I2UB        INTEGER                         REFS    343
  2730   ISASDE      INTEGER                FARRAY   REFS     39     400
  2727   ISASLAT     INTEGER                FARRAY   REFS     39     354
  2726   ISASLTU     INTEGER                FARRAY   REFS     39     269
  2715   ITMDIR      INTEGER                FARRAY   REFS     39     328
  3553   IWFORM      INTEGER                FARRAY   REFS     82     401
  2172   P           REAL                   FARRAY   REFS     20     348     350     360     366
  2163   PD          REAL                   FARRAY   REFS     20     360
  2737   PEDAL       REAL                   FARRAY   REFS     20     335 DEFINED     332
  2717   PEDALF      REAL                   FARRAY   REFS     39     338     340 DEFINED     335     338
  1255   PELAT       REAL                            REFS    349     351 DEFINED     348
  1213   PELATP      REAL                            REFS    348 DEFINED     211     345
  1256   PELT        REAL                            REFS    352     357 DEFINED     351
  3311   PELTD       REAL                   FARRAY   REFS     65     356     358     414     422
                                                  DEFINED    352     353     354     355     359
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VARIABLES		SN	TYPE	RELOCATION								
1234	PELTOP		REAL		REFS	352	DEFINED	228	356			
1235	PELTP		REAL		REFS	352	DEFINED	229	357			
1170	PE71		REAL		REFS	352	DEFINED	183				
1171	PE72		REAL		REFS	352	DEFINED	184				
1172	PE73		REAL		REFS	352	DEFINED	186				
3052	PGAIN		REAL	FARRAY	REFS	59	351	DEFINED	238			
3033	PGSAO		REAL	FARRAY	REFS	59						
1214	PP		REAL		REFS	348	DEFINED	212	350			
1143	P71		REAL		REFS	348	DEFINED	152				
1144	P72		REAL		REFS	348	DEFINED	153				
1145	P73		REAL		REFS	348	DEFINED	154				
2173	Q		REAL	FARRAY	REFS	20	265	2*360	366			
2016	Q3		REAL	FARRAY	REFS	20						
2164	QD		REAL	FARRAY	REFS	20						
3055	QGAIN		REAL	FARRAY	REFS	59	265	DEFINED	240			
1157	Q71		REAL		REFS	266	DEFINED	171				
1162	Q711		REAL		REFS	267	DEFINED	175				
1160	Q72		REAL		REFS	266	DEFINED	173				
1163	Q722		REAL		REFS	267	DEFINED	176				
1161	Q73		REAL		REFS	266	DEFINED	172				
1164	Q733		REAL		REFS	267	DEFINED	176				
2174	R		REAL	FARRAY	REFS	20	360	395	397			
1124	RCRTL		REAL		REFS	2*276	2*277	DEFINED	141			
2731	RCSF		REAL	FARRAY	REFS	39	276	277	278	281	2*282	283
					265	DEFINED	275	276	277	281	282	283
1211	RCSEP		REAL		REFS	275	2*276	2*277	DEFINED	209	278	
1131	RC71		REAL		REFS	139	275	DEFINED	137			
1132	RC72		REAL		REFS	140	275	DEFINED	139			
1133	RC73		REAL		REFS	275	DEFINED	140				
2165	RD		REAL	FARRAY	REFS	20	360	366				
3053	RGAIN		REAL	FARRAY	REFS	59	388	DEFINED	239			
1130	RLOAD		REAL		REFS	2*416	2*417	2*431	2*432	DEFINED	133	
1124	RLOHTD		REAL		REFS	2*294	2*295	DEFINED	123			
1263	RP		REAL		REFS	386	388	319	390	DEFINED	385	388
1230	RPIP		REAL		REFS	389	DEFINED	224	390			
1217	RQP		REAL		REFS	385	DEFINED	215	386			
1165	RQ71		REAL		REFS	389	DEFINED	179				
1166	RQ72		REAL		REFS	389	DEFINED	180				
1167	RQ73		REAL		REFS	389	DEFINED	180				
1220	RR		REAL		REFS	385	DEFINED	216	387			
1274	RTAL		REAL	ARRAY	REFS	94	343	DEFINED	103			
1304	RTALL		REAL	ARRAY	REFS	94	344	DEFINED	103			
1264	RTQ		REAL		REFS	391	393	DEFINED	389			
133	RTOP		REAL	FARRAY	REFS	15	265	349	350	385	387	
1236	RTQP		REAL		REFS	389	DEFINED	230	391			
1254	RUPLIM		REAL		REFS	2*345	DEFINED	344				
2757	RUPC		REAL	FARRAY	REFS	53	332					
1151	R71		REAL		REFS	385	DEFINED	162				
1152	R72		REAL		REFS	385	DEFINED	163				
1153	R73		REAL		REFS	385	DEFINED	164				
1245	STCO		REAL		REFS	266	272	DEFINED	265			
1237	STCOP		REAL		REFS	266	DEFINED	231	272			
1247	STCO1		REAL		REFS	267	271	DEFINED	266	268	269	270
1250	STCO1P		REAL		REFS	266	267	DEFINED	232	271		
1251	STCO2P		REAL		REFS	267	DEFINED	233	273			
2755	STLAPC		REAL	FARRAY	REFS	53	315					
2736	STLAT		REAL	FARRAY	REFS	20	316	6*310	6*321	395		

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     SUBROUTINE PEC17        74/175  OPT=2                     FTN 4.8+538        82/10/22. 15.12.52       PAGE    12

 VARIABLES     SN   TYPE            RELOCATION
                                                DEFINED     315       316
   2705   STLON     REAL               EARRAY     REFS       20       256     30259      263    DEFINED     255      256
   2765   STLONC    REAL               EARRAY     REFS       53       255
   1154   STL71     REAL                          REFS      396   DEFINED       167
   1155   STL72     REAL                          REFS      396   DEFINED       168
   1156   STL73     REAL                          REFS      396   DEFINED       169
   1235   TOTEL     REAL                          REFS    2*329   DEFINED       204
   1142   TEMP      REAL                          REFS      152       153       154      157      158      159      162
                                                   163      164       167       168      171      172      175      176
                                                   179      180       183       184      188      180      190      191
                                                   196      197       198       199      200  DEFINED      151      156
                                                   161      166       170       174      178      182      187      165
   1117   TEMP1     REAL                          REFS      118       120       129      130      137      139      144
                                                   146  DEFINED       117       127      136      143
   1121   TEMP2     REAL                          REFS      120       121       130      131      135      140      146
                                                   147  DEFINED       119       129      138      145
   3310   TGO       REAL               EARRAY     REFS       65       273       275      275      260      290
                                                DEFINED     267       268       263      270      280
   1212   TGOP      REAL                          REFS      275   DEFINED       210      279
   2771   TLAPC     REAL               EARRAY     REFS       53       312
   2770   TLOPC     REAL               EARRAY     REFS       53       252
   2716   TPATCEL   REAL               EARRAY     REFS       39       328   DEFINED      205
   2712   TOTMOIR   REAL               EARRAY     REFS       20       328       329      335  DEFINED      206      328
                                                   329
   2711   TOTMLAT   REAL               EARRAY     REFS       20   DEFINED       312
   2710   TOTMLON   REAL               EARRAY     REFS       20   DEFINED       252
   3610   VCAL      REAL               EARRAY     REFS       82       268       342      343      344      353      400
   3320   YPATE     REAL               EARRAY     REFS       82   DEFINED       407
   1140   YPCRTL    REAL                          REFS    2*405     2*406   DEFINED      148
   3317   YPCS      REAL               EARRAY     REFS       65       405       406      407      408      410
                                                DEFINED     404       405       406
   1222   YPCSP     REAL                          REFS      404     2*405     2*406      407  DEFINED      218      408
   1267   YPCH      REAL                          REFS      397       399   DEFINED      396
   1221   YPCHP     REAL                          REFS      396   DEFINED       217      397
   1135   YPC71     REAL                          REFS      145       404   DEFINED      144
   1136   YPC72     REAL                          REFS      147       404   DEFINED      146
   1137   YPC73     REAL                          REFS      404   DEFINED       147
   1270   YPS       REAL                          REFS      403       404       409  DEFINED      399      400      401
                                                   402      403
   1223   YPSP      REAL                          REFS      404   DEFINED       219      409

 EXTERNALS               TYPE     ARGS        REFERENCES
          EXP            REAL       1 LIBRARY    118      128       137       144
          FSPCH                     5            343
          FIR            REAL       4            344

 INLINE   FUNCTIONS      TYPE     ARGS           DEF LINE   REFERENCES
          ABS            REAL       1   INTRIN                 427      442
          AMAX1          REAL       0   INTRIN                 256      260       283      286      289      292      303      316
                                                               320      322       329      338      345      358      403      412
                                                               421      424       426      436      439      441
          AMIN1          REAL       0   INTRIN                 256      260       283      286      289      259      303      316
                                                               320      322       329      338      345      358      403      412
                                                               421      424       426      436      438      441
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      SUBROUTINE RCC07       74/175  OPT=2                    FTN 4.8+538      82/10/22. 15.12.52      PAGE    13

STATEMENT LABELS                     DEF LINE    REFERENCES
  431  200                             346          342
  174  020                             242          113

COMMON BLOCKS    LENGTH
      FARWAY      2000

STATISTICS
  PROGRAM LENGTH                       13160        718
  CM LABELED COMMON LENGTH             3720B       2000
        160000B CM USED
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            SUBROUTINE SEC07                                                  YAVAC     953
                                                                              YAVAC     954
                                                                              YAVAC     955
                                                                              YAVAC     956
                                                                              YAVAC     957
      *                                                                       YAVAC     958
      *     TYPE STATEMENTS                                                   YAVAC     959
      *                                                                       YAVAC     960
            REAL LVER                                                         YAVAC     961
      *                                                                       YAVAC     962
      *     COMMON STATEMENTS                                                 YAVAC     963
      *                                                                       YAVAC     964
            COMMON / FARRAY / F(1001)                                         YAVAC     965
      *                                                                       YAVAC     966
      *     EQUIVALENCE STATEMENTS                                            YAVAC     967
      *                                                                       YAVAC     968
            EQUIVALENCE                                                       YAVAC     969
           .(DT1    ,F(119)),                                                 YAVAC     970
           .(INITIAL,F(153)),                                                 YAVAC     971
           .(A      ,F(1001))                                                 YAVAC     972
                                                                              YAVAC     973
            EQUIVALENCE                                                       YAVAC     974
           .(DTIME  ,A(594)),                                                 YAVAC     975
           .(DELTHJ ,A(595)),                                                 YAVAC     976
           .(DROPLIM,A(601)),                                                 YAVAC     977
           .(DVU    ,A(602)),                                                 YAVAC     978
           .(DVD    ,A(603)),                                                 YAVAC     979
           .(RATE1  ,A(604)),                                                 YAVAC     980
           .(RATE2  ,A(606)),                                                 YAVAC     981
           .(HML    ,A(612)),                                                 YAVAC     982
           .(RDROPD ,A(616)),                                                 YAVAC     983
           .(DROOP  ,A(618)),                                                 YAVAC     984
           .(VLA    ,A(622))                                                  YAVAC     985
            EQUIVALENCE                                                       YAVAC     986
           .(DFLAPN ,A(624)),                                                 YAVAC     987
           .(IMODE  ,A(627)),                                                 YAVAC     988
           .(ILID   ,A(628)),                                                 YAVAC     989
           .(R      ,A(630)),                                                 YAVAC     990
           .(DFLFLAP,A(633)),                                                 YAVAC     991
           .(FLAP   ,A(634)),                                                 YAVAC     992
           .(TFLAP  ,A(635)),                                                 YAVAC     993
           .(DNFLAP ,A(636)),                                                 YAVAC     994
           .(DFLAPL ,A(637)),                                                 YAVAC     995
           .(DFLAPR ,A(638)),                                                 YAVAC     996
           .(DNLID  ,A(639)),                                                 YAVAC     997
           .(DROP   ,A(640)),                                                 YAVAC     998
           .(TERR   ,A(643)),                                                 YAVAC     999
           .(RDROPU ,A(646)),                                                 YAVAC    1000
           .(TEMP   ,A(648)),                                                 YAVAC    1001
           .(DFLAPC ,A(649))                                                  YAVAC    1002
            EQUIVALENCE                                                       YAVAC    1003
           .(THETAJ ,A(788)),                                                 YAVAC    1004
           .(IGEAR  ,A(882)),                                                 YAVAC    1005
           .(DNGEAR ,A(883)),                                                 YAVAC    1006
           .(TWOWN  ,A(900)),                                                 YAVAC    1007
           .(VKTS   ,A(929))                                                  YAVAC    1008
      *                                                                       YAVAC    1009
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SUBROUTINE SEC07      74/175  OPT=2                    FTN 4.8+538      82/11/08. 19.01.59      PAGE    2

        *       DIMENSION STATEMENTS                                   YAVAC     1010
        *                                                              YAVAC     1011
                DIMENSION                                              YAVAC     1012
               .A(1000),                                               YAVAC     1013
               .RATE1(2),                                              YAVAC     1014
               .RATE2(2),                                              YAVAC     1015
               .DROOP(2),                                              YAVAC     1016
               .DFLAP(2),                                              YAVAC     1017
               .DFLAPN(2)                                              YAVAC     1018
                                                                       YAVAC     1019
                DIMENSION                                              YAVAC     1020
               .DFR(2),                                                YAVAC     1021
               .R(2),                                                  YAVAC     1022
               .DIN(2),                                                YAVAC     1023
               .DFLAPC(2),                                             YAVAC     1024
               .RDROOP(2),                                             YAVAC     1025
               .RDROPU(2 ,                                             YAVAC     1026
               .RDROPD(2)                                              YAVAC     1027
                                                                       YAVAC     1028
                DIMENSION                                              YAVAC     1029
               .XVLTBL(7),                                             YAVAC     1030
               .DXLTBL(7),                                             YAVAC     1031
               .BXVL   (2),                                            YAVAC     1032
               .TXVL   (2)                                             YAVAC     1033
                                                                       YAVAC     1034
                DIMENSION                                              YAVAC     1035
               .TEPP(2),                                               YAVAC     1036
               .FTL(2),                                                YAVAC     1037
               .LVFR( 2),                                              YAVAC     1038
               .VLA ( 2),                                              YAVAC     1039
               .XVLFR(2),                                              YAVAC     1040
               .XVL   (2),                                             YAVAC     1041
               .HML  (2),                                              YAVAC     1042
               .CMR(2),                                                YAVAC     1043
               .DXL  (2),                                              YAVAC     1044
               .RLIM(2),                                               YAVAC     1045
               .DOUT(2)                                                YAVAC     1046
                                                                       YAVAC     1047
                DIMENSION                                              YAVAC     1048
               .FHINGE2(9),                                            YAVAC     1049
               .BHINGE2(2),                                            YAVAC     1050
               .FHINGE(6),                                             YAVAC     1051
               .BHINGE(2)                                              YAVAC     1052
        *                                                              YAVAC     1053
        *      DATA STATEMENTS                                         YAVAC     1054
        *                                                              YAVAC     1055
                DATA                                                   YAVAC     1056
        .        XVLTBL /-.1 ,-.055, -.021, -.005, 0.0 ,.044 , .100 /,    YAVAC     1057
        .        DXLTBL /-3.48 , -3.48 , -.47 , -.30 , 0.0, 2.49, 2.49 / ,  YAVAC     1058
        .        BXVL    /-.1 , .1 /,                                  YAVAC     1059
        .        DVU  /    5.0   / ,                                   YAVAC     1060
        .        DVD  / -10.0   / ,                                    YAVAC     1061
        .        DROPLIM / 15.  / ,                                    YAVAC     1062
        .        DTIME  /  5.0    / ,                                  YAVAC     1063
        .        DFLTHJ / 16.0    / ,                                  YAVAC     1064
        .        RDROPU /-6.5 ,-6.5/ ,                                 YAVAC     1065
        .        RDROPD / 8.0 , 8.0/                                   YAVAC     1066
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                                                                        YAVAC     1067
      DATA FHINGE /                                                     YAVAC     1068
     . 62000.0 , 66000.0 , 72500.0 , 81000.0 , 91000.0 , 103000.0 /     YAVAC     1069
      DATA RHINGE /                                                     YAVAC     1070
     . 0.0 , 10.0 /                                                     YAVAC     1071
      DATA FHINGE2 / 18600.0 , 19500.0 , 21000.0 , 23000.0 , 25600.0 ,  YAVAC     1072
     . 25900.0 , 32300.0 , 36300.0 , 40500.0 /                          YAVAC     1073
      DATA RHINGE2 / 25.0 , 65.0 /                                      YAVAC     1074
                                                                        YAVAC     1075
*                                                                       YAVAC     1076
*     GEAR AND LIDS DEVICE                                              YAVAC     1077
*                                                                       YAVAC     1078
                                                                        YAVAC     1079
      IF (INITIAL .EQ. 0) GO TO 1                                       YAVAC     1080
                                                                        YAVAC     1081
      DGEAR   = 0.0                                                     YAVAC     1082
      DNLID=0.0                                                         YAVAC     1083
      IF (IGEAR .EQ. 1) DGEAR = 90.0                                    YAVAC     1084
      IF(IGEAR.EQ.1) DNLID=1.0                                          YAVAC     1085
      DGDN    = 15.0  * DT1                                             YAVAC     1086
      DGUP    = 11.25 * DT1                                             YAVAC     1087
      RLID=0.333*DT1                                                    YAVAC     1088
      DT02 = DT1 * .5                                                   YAVAC     1089
      TIMER = 0.0                                                       YAVAC     1090
      DT=DT1                                                            YAVAC     1091
      TAIAS1 = 40. / 61.7                                               YAVAC     1092
                                                                        YAVAC     1093
    1 IF (IGEAR .EQ. 0) GO TO 5                                         YAVAC     1094
      DGEAR   = DGEAR + DGDN                                            YAVAC     1095
      GO TO 6                                                           YAVAC     1096
                                                                        YAVAC     1097
    5 DGEAR   = DGEAR - DGUP                                            YAVAC     1098
                                                                        YAVAC     1099
    6 DGEAR = AMIN1(90.,AMAX1(DGEAR,0.))                                YAVAC     1100
      DNGEAR  = DGEAR / 90.0                                            YAVAC     1101
      IF(ILID.EQ.0) GO TO 4                                             YAVAC     1102
      DNLID=DNLID-RLID                                                  YAVAC     1103
      GO TO 3                                                           YAVAC     1104
    4 CONTINUE                                                          YAVAC     1105
      IF(IGEAR.EQ.0) DNLID=DNLID-RLID                                   YAVAC     1106
      IF(IGEAR.NE.0) DNLID=DNLID+RLID                                   YAVAC     1107
    3 CONTINUE                                                          YAVAC     1108
      DNGEAR = AMIN1(1.,AMAX1(DNGEAR,0.))                               YAVAC     1109
      DNLID = AMIN1(1.,AMAX1(DNLID,0.))                                 YAVAC     1110
*                                                                       YAVAC     1111
*     YAV-8B FLAP SYSTEM AND DROOPED AILERONS                           YAVAC     1112
*                                                                       YAVAC     1113
      IF(INITIAL.EQ.0) GO TO 10                                         YAVAC     1114
      DO 9 I=1,2                                                        YAVAC     1115
      DFLAP(I)=0.0                                                      YAVAC     1116
      DPUDP(I)=0.0                                                      YAVAC     1117
      DFB(I)=0.0                                                        YAVAC     1118
      DFLAPM(I)=0.0                                                     YAVAC     1119
      DFLAPC(I)=0.0                                                     YAVAC     1120
      LVFB(I) = 0.0                                                     YAVAC     1121
      XVLFB(I)= 0.0                                                     YAVAC     1122
      DOUT(I) = 0.0                                                     YAVAC     1123
```

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SUBROUTINE SFC07      74/175  OPT=2                    FTN 4.8+538       82/11/08. 19.01.59       PAGE     4

            VLA(I)  = 0.0
            CMF(I)  = 0.0
            DELFLAP=0.0
            RDROP(I) = RDROPH(I)
          9 CONTINUE
            DV=DVH
            IFLAG=1
            RATE20 = 20.746
            RATE14 = 14.879
            RATE   =  2.269
            BIAS  = -40. / 61.7
         10 CONTINUE
            TEMPI = VKTS*VKTS/ (165.*165.)
            DO 11 I=1,2
            IF(VKTS.LE.250.) GO TO 12
      *
      *
      *  FLAP HINGE MOMENT LIMITS - M = .8 ,ALT = 5000., ALPHA = 10.0
      *
      *
            HML(I)  = F1A(DFLAP(I),6,AHINGE,FHINGE)
            HML(I) = AMIN1(95000.,AMAX1(HML(I),-95000.))
            GO TO 13
         12 CONTINUE
      *  LOW SPEED FLAP HINGE MOMENTS
            HML(I) = F1A(DFLAP(I),9,AHINGE2,FHINGE2)
            HML(I) = HML(I)*TEMPI
         13 CONTINUE
      *
         11 CONTINUE
            IFRP(1) = 3.353
            IFRP(2) = 3.353
            RLIM(1) = RLIM(2) = 1.0
            TBIAS = 0.0
      *
      *
      *  FLAP CONTROL LOGIC
      *
      *
            TEMP=1.468*THETAJ-11.7
            TEMP = AMIN1(61.7,AMAX1(TEMP,25.))
            TEMPR=TEMP-2.0
            DO 101 I=1,2
            IF(IMODE.NE.0) GO TO 113
      *
      *     UP MODE
      *
            DFLAPH(I)=DFLAPH(I)+7.0*DT*IFLAP
            DFLAPH(I) = AMIN1(26.935,AMAX1(DFLAPH(I),0.))
            DFLAPC(I)=DFLAPH(I)
            RATE1(I) = -RATE
            RATE2(I) =  RATE
            IF(DFLAP(I).GT.TEMPR .A. DFLAP(I).GT. 25.) RATE1(I) = -RATE20
            IF(DFLAP(I).GT.TEMPR .A. DFLAP(I).GT. 25.) RATE2(I) =  RATE14
            GO TO 102
      *
      *     DOWN MODE FOR AIRSPEEDS GT 175 KTS
```

```
*
  113 CONTINUE
*  SIMULATE 27 DEG VOLTAGE BIAS DIFFERENTIAL WITH MODE SWITCH DOWN
      TBIAS = TBIAS1
      DFLAPM(I)=0.0
      VEL=170.+DV
      IF(VKTS.LT.VEL) GO TO 115
      DV=DVD
      IFLAG=1
      DFLAPC(I) = 25.0
      RATE1(I) = -RATE
      RATE2(I) =  RATE
      IF(DFLAP(I).GT.TEMPR .A. DFLAP(I).GT. 25.) RATE1(I) = -RATE20
      IF(DFLAP(I).GT.TEMPR .A. DFLAP(I).GT. 25.) RATE2(I) =  RATE14
      GO TO 102
*
*     DOWN MODE FOR AIRSPEEDS LT 155 KTS
*
  115 CONTINUE
      DV=DVU
      IF(DFLAP(I).GE.24.95) GO TO 121
      DFLAPC(I) = TEMP
      RATE1(I) = -RATE
      RATE2(I) =  RATE
      GO TO 102
  121 CONTINUE
      IF(IFLAG.EQ.0) GO TO 120
      DFLAPC(I)=TEMP
      RATE1(I) = -RATE
      RATE2(I) = RATE
      IF(DFLAP(I).GE.TEMPR) IFLAG=0
      GO TO 102
  120 CONTINUE
      DFLAPC(I)=TEMP
      RATE1(I) = - RATE20
      RATE2(I) =   RATE14
  102 CONTINUE
*
*  DROOPED AILERON LOGIC
*
      IF(IMODE .NE. 0) GO TO 107
      RDROP(I) = RDROPU(I)
      TIMER = 0.0
      GO TO 108
 107  CONTINUE
      IF(IVONW.EQ.1.0.TIMER.GT.0.) GO TO 141
      IF(THETAJ .LT. DELTHJ) RDROP(I) = RDROPU(I)
      GO TO 140
 141  CONTINUE
      TIMER = TIMER - DT02
      IF(IVONW.EQ.1) TIMER = OTIME
      RDROP(I) = RDROPD(I)
      GO TO 108
  140 CONTINUE
      TIMER = 0.0
      VEL1 = 170. + DVU
      IF(VKTS.LT. VEL1) GO TO 109
```

```
      RDROP(I) = RDROPU(I)
      GO TO 108
  109 CONTINUE
      VEL1 = 170. + DVD
      IF(VKTS.GT. VEL1) GO TO 108
      IF(THETA .GE.DELTHU) RDROP(I) = RDROPD(I)
  108 CONTINUE
      DROOP(I) = DROOP(I) + RDROP(I)*DT
      DROOP(I) = AMIN1(DROPLIM,AMAX1(DROOP(I),0.))
  101 CONTINUE
      DT2= DT1/ 4.0
      DO 106 N = 1,4
*
*  RATE LIMITER AND INTEGRATOR
*
      DO 103 I = 1,2
      DIN(I) = DFLAPC(I) * 20. / 61.7 - DFB(I) + BIAS + TBIAS
      R(I)   = DIN(I)* 100.
      R(I) = AMIN1(RATE2(I),AMAX1(R(I),RATE1(I)))
      DFB(I) = DFB(I) + R(I)*DT2
      DFB1 = DFB(I)
      DFB1 = AMIN1(20.65,AMAX1(DFB1,-.65))
      FTL(I) = DFB1*8.986
  103 CONTINUE
*
*  ACTUATOR MODEL
*
      DO 104 I = 1,2
      CM1 = FTL(I) - LVFB(I)
      CM1 = AMIN1(40.,AMAX1(CM1,-40.))
      CM4 = 2.0*CM1 - XVLFB(I)
      CM4 = AMIN1(10.,AMAX1(CM4,-10.))
      CM5(I) = CM5(I) + CM4*.0258*DT2/.4278
      CM5(I) = AMIN1(.055,AMAX1(CM5(I),-.055))
      XVLFB(I) = CM5(I)*727.3
      XVL(I) = CM5(I)
      CALL FSRCH(XVL(I),XVLTAL,7,IXVL(I),1)
      DXL(I) = FIB(XVL(I),7,BXVL,DXLTAL)
*
*  COMPUTE FLAP HINGE MOMENTS
*
      IF(DXL(I) .LT. 0.0)  GO TO 116
      HML(I) = AMIN1(105500.,AMAX1(HML(I),-105500.))
      HMIL = HML(I) * .0000094715
      HMIN = 1. - HMIL
      GO TO 117
  116 CONTINUE
      HML(I) = AMIN1(84400.,AMAX1(HML(I),-84400.))
      HMIL = HML(I) * .000011842
      HMIN = 1. + HMIL
  117 CONTINUE
      HMLL = SQRT(HMIN)
      DXL(I) = DXL(I)*HMLL
      DOUT(I) = DOUT(I) + DXL(I)*RLEM(I)*DT2
      DOUT(I) = AMIN1(TERP(I),AMAX1(DOUT(I),0.))
  104 CONTINUE
*
```

```
              DFLAP(1) = DOUT(1)*61.7/3.353                                YAVAC     1295
              DFLAP(2) = DOUT(2)*61.7/3.353                                YAVAC     1296
              DO 105 I = 1,2                                               YAVAC     1297
              VLA(I) = DOUT(I)*20./3.353                                   YAVAC     1298
              LVEB(I) = VLA(I)*0.986                                       YAVAC     1299
         105  CONTINUE                                                     YAVAC     1300
         106  CONTINUE                                                     YAVAC     1301
              DELFLAP=ABS(DFLAP(1)-DFLAP(2))                               YAVAC     1302
              FLAP=(DFLAP(1)+DFLAP(2))*0.5                                 YAVAC     1303
              DNFLAP=FLAP/61.7                                             YAVAC     1304
              DFLAPL=DFLAP(1)                                              YAVAC     1305
              DFLAPR=DFLAP(2)                                              YAVAC     1306
              DROP=(DROOP(1)+DROOP(2))*0.5                                 YAVAC     1307
              RETURN                                                       YAVAC     1308
              END                                                          YAVAC     1309
```

```
SYMBOLIC REFERENCE MAP (R=2)

ENTRY POINTS       DEF LINE      REFERENCES
    1   SEC07          1           354

VARIABLES       SN   TYPE             RELOCATION
  1750   A           REAL      ARRAY    FARRAY       REFS       17      11*22     16*34     5*51      60
   741   BHINGE      REAL      ARRAY                 REFS       96       192    DEFINED    118
   731   BHINGE2     REAL      ARRAY                 REFS       96       197    DEFINED    122
   630   BIAS        REAL                            REFS      302    DEFINED      182
   676   BXVL        REAL      ARRAY                 REFS       77       323    DEFINED    104
   641   CM1         REAL                            REFS      315       316    DEFINED    314       315
   642   CM4         REAL                            REFS      317       318    DEFINED    316       317
   710   CM5         REAL      ARRAY                 REFS       83       318       319    320       321
                                                  DEFINED      173       318       319
  3140   DELFLAP     REAL               FARRAY       REFS       34    DEFINED      174    350
  3072   DELTHJ      REAL               FARRAY       REFS       22       275       291  DEFINED     104
   652   DFB         REAL      ARRAY                 REFS       68       302       305    306    DEFINED    166      305
   640   DFB1        REAL                            REFS      307       308    DEFINED    306       307
   650   DFLAP       REAL      ARRAY                 REFS       60       192       197  2*224     2*225    2*241    2*242
                                                      249      259     2*350     2*351    353       354
                                                  DEFINED      164       343       344
  3160   DFLAPC      REAL      ARRAY    FARRAY       REFS       34        68       302  DEFINED     168      221      238
                                                      250      256       262
  3144   DFLAPL      REAL               FARRAY       REFS       34    DEFINED      353
  3127   DFLAPM      REAL      ARRAY    FARRAY       REFS       34        60       219    220       221
                                                  DEFINED      167       219       220    233
  3145   DFLAPR      REAL               FARRAY       REFS       34    DEFINED      354
   613   DGDH        REAL                            REFS      143    DEFINED      134
   612   DGEAR       REAL                            REFS      143       146       148    149    DEFINED    130      132
                                                      143      146       148
   614   DGUP        REAL                            REFS      146    DEFINED      135
   654   DIN         REAL      ARRAY                 REFS       68       303    DEFINED    302
  3143   DNFLAP      REAL               FARRAY       REFS       34    DEFINED      352
  3132   DNGEAR      REAL               FARRAY       REFS       51       157    DEFINED    149       157
  3146   DNLID       REAL               FARRAY       REFS       34       151       154    155       158
                                                  DEFINED      131       133       151    154       155      158
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      SUBROUTINE SEC07         74/175  OPT=2                               FTN 4.8+538        82/11/08. 19.01.59       PAGE      8

VARIABLES       SN   TYPE              RELOCATION
   716   DOUT        REAL        ARRAY                 REFS       83       339       340       343       344       346
                                                    DEFINED      171       339       340
  3121   DROOP       REAL        ARRAY     FARRAY      REFS       22        60       293       294     2*355
                                                    DEFINED      165       293       294
  3147   DROP        REAL                  FARRAY      REFS       34   DEFINED       355
  3100   DROPLIM     REAL                  FARRAY      REFS       22       294   DEFINED       104
   620   DT          REAL                              REFS      219       293   DEFINED       139
  3071   DTIME       REAL                  FARRAY      REFS       22       279   DEFINED       104
   616   DT02        REAL                              REFS      278   DEFINED       137
   166   DT1         REAL                  FARRAY      REFS       17       134       135       136       137       139       296
   636   DT2         REAL                              REFS      305       318       339   DEFINED       296
   623   DV          REAL                              REFS      234   DEFINED       177       236       248
  3102   DVD         REAL                  FARRAY      REFS       22       236       289   DEFINED       104
  3101   DVU         REAL                  FARRAY      REFS       22       177       248       294   DEFINED       104
   712   DXI         REAL        ARRAY                 REFS       83       327       338       339   DEFINED       323       339
   667   DXLTBL      REAL        ARRAY                 REFS       77       323   DEFINED       104
     0   F           REAL        ARRAY     FARRAY      REFS       13      3*17
   733   FHINGE      REAL        ARRAY                 REFS       96       192   DEFINED       116
   720   FHINGE2     REAL        ARRAY                 REFS       96       197   DEFINED       120
  3141   FLAP        REAL                  FARRAY      REFS       34       352   DEFINED       351
   702   FTL         REAL        ARRAY                 REFS       83       314   DEFINED       309
   643   HMIL        REAL                              REFS      330       335   DEFINED       329       334
   644   HMIN        REAL                              REFS      337   DEFINED       330       335
  3113   HML         REAL        ARRAY     FARRAY      REFS       22        83       193       198       328       329       333
                                                          334  DEFINED       192       193       197       198       328       333
   645   HMLL        REAL                              REFS      338   DEFINED       337
   622   I           INTEGER                           REFS      164       165       166       167       168       169       170
                                                          171       172       173     2*175     2*192     2*193     2*197     2*198
                                                        2*219     2*220     2*221       222       223     3*224     3*225       233
                                                          238       239       240     3*241     3*242       249       250       251
                                                          252       256       257       258       259       262       263       264
                                                        2*270     2*275     2*280     2*284     2*291     3*293     2*294     3*302
                                                        2*303     4*304     3*305       306       308     2*314       316     2*318
                                                        2*319     2*320     2*321     2*322     2*323       327     2*328       329
                                                        2*333       334     2*338     4*339     3*340     2*346     2*347
                                                    DEFINED      163       185       214       301       313       345
   624   IFLAG       INTEGER                           REFS      255   DEFINED       178       237       259
  3142   IFLAP       INTEGER               FARRAY      REFS       34       219
  3531   IGEAR       INTEGER               FARRAY      REFS       51       132       133       142       154       155
  3133   ILID        INTEGER               FARRAY      REFS       34       150
  3132   IMODE       INTEGER               FARRAY      REFS       34       215       269
   230   INITIAL     INTEGER               FARRAY      REFS       17       128       162
  3553   IWONW       INTEGER               FARRAY      REFS       51       274       279
   700   IXVL        INTEGER     ARRAY                 REFS       77       322
   646   LVER        REAL        ARRAY                 REFS        9        83       314   DEFINED       169       347
   637   N         * INTEGER                        DEFINED      297
  3135   R           REAL        ARRAY     FARRAY      REFS       34        68       304       305   DEFINED       303       304
   627   RATE        REAL                              REFS      222       223       239       240       251       252       257
                                                          258  DEFINED       181
  3103   RATE1       REAL        ARRAY     FARRAY      REFS       22        60       304   DEFINED       222       224       239
                                                          241       251       257       263
   626   RATE14      REAL                              REFS      225       242       264   DEFINED       180
  3105   RATE2       REAL        ARRAY     FARRAY      REFS       22        60       304   DEFINED       223       225       240
                                                          242       252       258       264
   625   RATE20      REAL                              REFS      224       241       263   DEFINED       179
   656   ROROP       REAL        ARRAY                 REFS       68       293   DEFINED       175       270       275       280
                                                          296       291
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      SUBROUTINE SPC07      74/175  OPT=2                       FTN 4.8+538      82/11/08. 19.01.59      PAGE     9

VARIABLES      SN  TYPE          RELOCATION
  3117  RDROPD     REAL       ARRAY   FARRAY      REFS        22       68      280      291   DEFINED      104
  3155  RDROPH     REAL       ARRAY   FARRAY      REFS        34       68      175      270      275      286
                                               DEFINED       104
   615  RLID       REAL                           REFS       151      154      155  DEFINED      136
   714  RLIM       REAL       ARRAY               REFS        83      339  DEFINED    2*204
   632  TBIAS      REAL                           REFS       302  DEFINED      205      232
   621  TBIAS1     REAL                           REFS       232  DEFINED      140
  3157  TEMP       REAL               FARRAY      REFS        34      212      213      250      256      262
                                               DEFINED       211      212
   633  TEMPR      REAL                           REFS       224      225      241      242      259
                                               DEFINED       213
   631  TEMP1      REAL                           REFS       198  DEFINED      184
  3152  TERP       REAL       ARRAY   FARRAY      REFS        34       83      340  DEFINED      202      203
  3373  THETAJ     REAL               FARRAY      REFS        51      211      275      291
   617  TIMER      REAL                           REFS       274      278  DEFINED      138      271      278      279
                                                   283
   634  VEL        REAL                           REFS       235  DEFINED      234
   635  VEL1       REAL                           REFS       285      290  DEFINED      294      289
  3610  VKTS       REAL               FARRAY      REFS        51    2*184      186      235      285      290
  3125  VLA        REAL       ARRAY   FARRAY      REFS        22       83      347  DEFINED      172      346
   706  XVL        REAL       ARRAY               REFS        83      322      323  DEFINED      321
   704  XVLFB      REAL       ARRAY               REFS        83      316  DEFINED      170      320
   660  XVLTBL     REAL       ARRAY               REFS        77      322  DEFINED      104

EXTERNALS          TYPE    ARGS        REFERENCES
        FSRCH               5              322
        F1A        REAL     4              192      197
        F1B        REAL     4              323
        SQRT       REAL     1  LIBRARY     337

INLINE FUNCTIONS   TYPE    ARGS        DEF LINE  REFERENCES
        ABS        REAL     1  INTRIN               350
        AMAX1      REAL     0  INTRIN               148      157      158      193      212      220      296      304
                                                    307      315      317      319      328      333      340
        AMIN1      REAL     0  INTRIN               148      157      158      193      212      220      296      304
                                                    307      315      317      319      328      333      340

STATEMENT LABELS                   DEF LINE   REFERENCES
    25  1                            142         128
    51  3                            156         152
    43  4                            153         150
    31  5                            146         142
    33  6                            148         144
     0  9                            176         163
   103  10                           183         162
     0  11                           201         185
   120  12                           195         186
   125  13                           190         194
     0  101                          235         214
   252  102                          265         226      243      253      260
     0  103                          309         301
     0  104                          341         313
     0  105                          349         345
     0  106                          349         297
   255  107                          273         269
   305  108                          292         272      281      287      290
   277  109                          298         285
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ORIGINAL PAGE IS
OF POOR QUALITY

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      SUBROUTINE SEC07        74/175  OPT=2                    FTN 4.8+538        82/11/08. 19.01.59        PAGE    10

STATEMENT LABELS                DEF LINE    REFERENCES
   203   113                       230         215
   230   115                       247         235
   421   116                       332         327
   430   117                       336         331
   246   120                       261         255
   237   121                       254         249
   272   140                       282         276
   264   141                       277         274

LOOPS  LABEL      INDEX      FROM-TO     LENGTH     PROPERTIES
   62   9          I          163 176       11B       INSTACK
  106   11         I          185 201       22B                  EXT REFS
  157   101        I          214 295      135B          OPT
  327   106        N          297 349      127B                  EXT REFS  NOT INNER
  334   103        I          301 309       17B          OPT
  354   104        I          313 341       67B                  EXT REFS
  451   105        I          345 348        3B       INSTACK

COMMON BLOCKS    LENGTH
        FARRAY     2000

STATISTICS
  PROGRAM LENGTH                  743B       483
  CM LABELED COMMON LENGTH       3720B      2000
       160000B CM USED
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SUBROUTINE WTBAL07     74/175  OPT=2                        FTN 4.8+538       82/11/08. 19.01.59       PAGE     1

      SUBROUTINE WTBAL07                                                  YAVAC    1310
                                                                          YAVAC    1311
                                                                          YAVAC    1312
*                                                                         YAVAC    1313
*     TYPE DECLARATION STATEMENTS                                         YAVAC    1314
*                                                                         YAVAC    1315
                                                                          YAVAC    1316
      REAL                                                                YAVAC    1317
     .    ICON                                                            YAVAC    1318
                                                                          YAVAC    1319
*                                                                         YAVAC    1320
*     COMMON STATEMENTS                                                   YAVAC    1321
*                                                                         YAVAC    1322
                                                                          YAVAC    1323
      COMMON / FARRAY / F(1001)                                           YAVAC    1324
                                                                          YAVAC    1325
*                                                                         YAVAC    1326
*     EQUIVALENCE STATEMENTS                                              YAVAC    1327
*                                                                         YAVAC    1328
                                                                          YAVAC    1329
      EQUIVALENCE                                                         YAVAC    1330
     .    (G      ,F(100)),                                               YAVAC    1331
     .    (INITIAL,F(153)),                                               YAVAC    1332
     .    (A      ,F(1001))                                               YAVAC    1333
                                                                          YAVAC    1334
      EQUIVALENCE                                                         YAVAC    1335
     .    (WEIGHT ,A(251)),                                               YAVAC    1336
     .    (PMASS  ,A(252)),                                               YAVAC    1337
     .    (CGFS   ,A(253)),                                               YAVAC    1338
     .    (CGBL   ,A(254)),                                               YAVAC    1339
     .    (CGWL   ,A(255)),                                               YAVAC    1340
     .    (RIXX   ,A(256)),                                               YAVAC    1341
     .    (RIYY   ,A(257)),                                               YAVAC    1342
     .    (RIZZ   ,A(258)),                                               YAVAC    1343
     .    (RIXZ   ,A(259)),                                               YAVAC    1344
     .    (ICON   ,A(260)),                                               YAVAC    1345
     .    (CG     ,A(270))                                                YAVAC    1346
                                                                          YAVAC    1347
      EQUIVALENCE                                                         YAVAC    1348
     .    (BSMOMX ,A(273)),                                               YAVAC    1349
     .    (BSMOMY ,A(274)),                                               YAVAC    1350
     .    (BSMOMZ ,A(275)),                                               YAVAC    1351
     .    (DNLTD  ,A(639)),                                               YAVAC    1352
     .    (FUEL   ,A(782)),                                               YAVAC    1353
     .    (FUELMX ,A(791)),                                               YAVAC    1354
     .    (PWATER ,A(819)),                                               YAVAC    1355
     .    (DNGEAR ,A(883))                                                YAVAC    1356
                                                                          YAVAC    1357
*                                                                         YAVAC    1358
*     DIMENSION STATEMENTS                                                YAVAC    1359
*                                                                         YAVAC    1360
                                                                          YAVAC    1361
      DIMENSION                                                           YAVAC    1362
     .    A       (1000),                                                 YAVAC    1363
     .    DIXX    (   7),                                                 YAVAC    1364
     .    DIYY    (   7),                                                 YAVAC    1365
     .    DIZZ    (   7),                                                 YAVAC    1366
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SUBROUTINE WTBAL07    74/175  OPT=2                 FTN 4.8+538       82/11/08. 19.01.59       PAGE    2

      .     DIXZ    (     7),                                                       YAVAC     1367
      .     FWTI    (     7),                                                       YAVAC     1368
      .     PWT     (     3),                                                       YAVAC     1369
      .     HRIXX   (     3),                                                       YAVAC     1370
      .     HRIYY   (     3),                                                       YAVAC     1371
      .     HRIZZ   (     3),                                                       YAVAC     1372
      .     HRIXZ   (     3),                                                       YAVAC     1373
      .     HMOMX   (     3),                                                       YAVAC     1374
      .     HMOMZ   (     3),                                                       YAVAC     1375
      .     FMOMX   (     7),                                                       YAVAC     1376
      .     FMOMZ   (     7),                                                       YAVAC     1377
      .     ICON    (    10)                                                        YAVAC     1378
       DIMENSION                                                                    YAVAC     1379
      .     RMGEART(7),                                                             YAVAC     1380
      .     RMLIOST(7),                                                             YAVAC     1381
      .     RMGEAR (7),                                                             YAVAC     1382
      .     RMLIOS (7),                                                             YAVAC     1383
      .     BFDI    (2),                                                            YAVAC     1384
      .     BWD     (2)                                                             YAVAC     1385
*                                                                                   YAVAC     1386
*      DATA STATEMENTS                                                              YAVAC     1387
*                                                                                   YAVAC     1388
                                                                                    YAVAC     1389
       DATA                                                                         YAVAC     1390
      .     FWTI  / 0.0,  407.0,  810.0,  2433.0,  4311.0,  5286.0,                 YAVAC     1391
      .             7185.0  /,                                                      YAVAC     1392
      .     PWT   /  0.0    ,  260.0 ,   495.0 /                                    YAVAC     1393
                                                                                    YAVAC     1394
       DATA                                                                         YAVAC     1395
      .     DIXX  / 5832. , 5907. , 5975. , 6227. , 9093. , 9602. ,                 YAVAC     1396
      .             10103. /,                                                       YAVAC     1397
      .     DIYY  /28493. ,28525. ,28769. ,31077. , 31732. ,31966. ,                YAVAC     1398
      .             32451. /,                                                       YAVAC     1399
      .     DIZZ  /32388. ,32455. ,32732. ,35153. ,38512. ,39044. ,                 YAVAC     1400
      .             39711. /,                                                       YAVAC     1401
      .     DIXZ  / 1036. , 1043. , 1098. , 1371. , 1475. , 1542. ,                 YAVAC     1402
      .             1705. /                                                         YAVAC     1403
       DATA                                                                         YAVAC     1404
      .     FMOMX / 0.0,  137432.0,  260666.0,  832073.0,  1542074.0,               YAVAC     1405
      .             1895216.0,  2586357.0  /,                                       YAVAC     1406
      .     FMOMZ /      0.0,    33211.,   66338.,   233345.,   428094.,            YAVAC     1407
      .             537489.,   763660.  /                                           YAVAC     1408
*                                                                                   YAVAC     1409
       DATA                                                                         YAVAC     1410
      .     HRIXX /  0.0   ,  3.0   ,  11.0 / ,                                     YAVAC     1411
      .     HRIYY /  0.0   ,112.0   , 219.0 / ,                                     YAVAC     1412
      .     HRIZZ /  0.0   ,114.0   , 220.0 / ,                                     YAVAC     1413
      .     HRIXZ /  0.0   , -5.0   ,  -5.0 /                                       YAVAC     1414
       DATA                                                                         YAVAC     1415
      .     HMOMX /   0.0      ,  102960.0, 196020.0/,                              YAVAC     1416
      .     HMOMZ /   0.0      ,   25220.0,   50688.0/                              YAVAC     1417
       DATA                                                                         YAVAC     1418
      .     BFDI  / 0.0 ,  7185.0 /,                                                YAVAC     1419
      .     BWD   / 0.0 ,   495. /                                                  YAVAC     1420
       DATA                                                                         YAVAC     1421
      .     RMGEART / -4100.0 , 0.0 , -22909.0 , 320.0 , -150.0 ,                   YAVAC     1422
                                                                                    YAVAC     1423
```

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                    -460.0 , 11.0 /,
     :    RMLIDST / 53.0 , 0.0 , -26.0 , .0 , .0 , .0 , .0 /

      IF (INITIAL .EQ. 0) GO TO 1

*
*    OPERATING WEIGHT CLEAN AIRCRAFT - 12852
*    PILOT  - 200
*    OIL    - 24
*    UNUSABLE FUEL - 45
*    OXYGEN - 13
*    CENTERLINE PYLON -  52
*    INBOARD PYLONS - 210
*    INTERMEDIATE PYLONS - 193
*    GUN PODS - 258
*    WEIGHT EMPTY FLIGHT TEST AIRCRAFT - 13847
*    MOMENTS IN LB-IN.
        DRY = 13847.0
        DRYMOMX = 4772062.
        DRYMOMY =     911.
        DRYMOMZ = 1336961.

     1  CONTINUE
*
*    GEAR AND LIDS LOGIC
*
        DO 10 I=1,7
     10 RMGEAR(I)=RMLIDS(I)=0.0
        IF(DNGEAR.LT.0.9) GO TO 20
        DO 30 I=1,7
     30 RMGEAR(I)=RMGEART(I)
     20 IF(DNLID.LT.0.9) GO TO 40
        DO 50 I=1,7
     50 RMLIDS(I)=RMLIDST(I)
     40 CONTINUE
*
*    CALCULATE FUEL INERTIAS
*
        CALL FSRCH(FUEL,FWT1,7,IWT1,1)
        RIXX = FIB(FUEL,7,BFD1,DIXX)
        RIYY = FIB(FUEL,7,BFD1,DIYY)
        RIZZ = FIB(FUEL,7,BFD1,DIZZ)
        RIXZ = FIB(FUEL,7,BFD1,DIXZ)
*    CALCULATE FUELMOMENTS
*
        FUELMX=FIB(FUEL,7,BFD1,FMOMX)
        FUELMZ = FIB(FUEL,7,BFD1,FMOMZ)
*    CALCULATE WATER INERTIAS
*
        CALL FSRCH(PWATER,PWT,3,IWA,1)
        H2ORXX = FIB(PWATER,3,BWD,HR(XX))
        H2ORYY = FIB(PWATER,3,BWD,HR(YY))
        H2ORZZ = FIB(PWATER,3,BWD,HR(ZZ))
        H2ORXZ = FIB(PWATER,3,BWD,HR(XZ))
```

SUBROUTINE WTDAL07   74/175 OPT=2   FTN 4.9+538   82/11/08. 19.01.59   PAGE   4

```
C
C     CALCULATE WATER MOMENTS
C
      H2OMOMX = FIB(PWATER,3,BWD,HMOMX)
      H2OMOMZ = FIB(PWATER,3,BWD,HMOMZ)

      WEIGHT = DRY + FUEL + PWATER

      RMASS   = WEIGHT / G
C
C     BIASES (BSMOMX,ETC.) CAN BE ADDED TO TOTAL MOMENTS.
C
      TOTMOMX = DRYMOMX+FUELMX+H2OMOMX+RMGEAR(1)+RMLIDS(1)+BSMOMX
      TOTMOMY = DRYMOMY              +RMGEAR(2)+RMLIDS(2)+BSMOMY
      TOTMOMZ = DRYMOMZ+FUELMZ+H2OMOMZ+RMGEAR(3)+RMLIDS(3)+BSMOMZ
C
C     CG LOCATION IN INCHES.
C
      CGFS  =  TOTMOMX/WEIGHT
      CGBL  =  TOTMOMY/WEIGHT
      CGWL  =  TOTMOMZ/WEIGHT
C
C     CG IN PERCENT MAC
C
      CG   = (CGFS - 336.3) / 99.792
C
C     COMPUTE TOTAL INERTIAS
C
      RIXX = RIXX + H2ORXX + RMGEAR(4) + RMLIDS(4)
      RIYY = RIYY + H2ORYY + RMGEAR(5) + RMLIDS(5)
      RIZZ = RIZZ + H2ORZZ + RMGEAR(6) + RMLIDS(6)
      RIXZ = RIXZ + H2ORXZ + RMGEAR(7) + RMLIDS(7)

          TEMP = RIXX*RIZZ - RIXZ*RIXZ
      ICON(1) = RIZZ/TEMP
      ICON(2) = RIXZ/TEMP
      ICON(3) = RIXZ*(RIXX - RIYY + RIZZ)/TEMP
      ICON(4) = (RIZZ*(RIYY -RIZZ) - RIXZ*RIXZ)/TEMP
      ICON(5) = 1.0/RIYY
      ICON(6) = (RIZZ - RIXX)/RIYY
      ICON(7) = RIXZ/RIYY
      ICON(8) = 1.0 /RIZZ
      ICON(9) = (RIXX - RIYY)/RIZZ
      ICON(10)= RIXZ/RIZZ
      RETURN
      END
```

SYMBOLIC REFERENCE MAP (R=2)

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       SUBROUTINE WTBAL07    74/175  OPT=2                          FTN 4.8+538        82/11/08. 19.01.59        PAGE      5

ENTRY POINTS      DEF LINE      REFERENCES
    1  WTBAL07        1            520

VARIABLES       SN   TYPE             RELOCATION
   1750  A            REAL      ARRAY     FARRAY      REFS        21     11*26      8*39      53
    463  AFD1         REAL      ARRAY                 REFS        70       157       158     159       160       163       164
                                                   DEFINED       110
   2370  BSMOMX       REAL                FARRAY      REFS        39       185
   2371  BSMOMY       REAL                FARRAY      REFS        39       186
   2372  BSMOMZ       REAL                FARRAY      REFS        39       187
    465  BWD          REAL      ARRAY                 REFS        70       168       169     170       171       175       176
                                                   DEFINED       110
   2365  CG           REAL                FARRAY      REFS        26   DEFINED       198
   2345  CGBL         REAL                FARRAY      REFS        26   DEFINED       193
   2344  CGFS         REAL                FARRAY      REFS        26       198   DEFINED     192
   2346  CGWL         REAL                FARRAY      REFS        26   DEFINED       194
    321  DIXX         REAL      ARRAY                 REFS        53       157   DEFINED      87
    346  DIXZ         REAL      ARRAY                 REFS        53       160   DEFINED      87
    330  DIYY         REAL      ARRAY                 REFS        53       158   DEFINED      87
    337  DIZZ         REAL      ARRAY                 REFS        53       159   DEFINED      87
   3532  DNGEAR       REAL                FARRAY      REFS        39       146
   3146  DNLID        REAL                FARRAY      REFS        39       149
    277  DRY          REAL                            REFS       179   DEFINED       134
    300  DRYMOMX      REAL                            REFS       185   DEFINED       135
    301  DRYMOMY      REAL                            REFS       186   DEFINED       136
    302  DRYMOMZ      REAL                            REFS       187   DEFINED       137
      0  F            REAL      ARRAY     FARRAY      REFS        15      3*21
    411  FMOMX        REAL      ARRAY                 REFS        53       163   DEFINED      96
    420  FMOMZ        REAL      ARRAY                 REFS        53       164   DEFINED      96
   3365  FUEL         REAL                FARRAY      REFS        39       156       157     158       159       160       163
                                                       164       179
   3376  FUELMX       REAL                FARRAY      REFS        39       185   DEFINED     163
    305  FUELMZ       REAL                            REFS       187   DEFINED       164
    355  FWT1         REAL      ARRAY                 REFS        53       156   DEFINED      42
    143  G            REAL                FARRAY      REFS        21       181
    403  HMOMX        REAL      ARRAY                 REFS        53       175   DEFINED     107
    406  HMOMZ        REAL      ARRAY                 REFS        53       176   DEFINED     107
    357  HRIXX        REAL      ARRAY                 REFS        53       168   DEFINED     102
    400  HRIXZ        REAL      ARRAY                 REFS        53       171   DEFINED     102
    372  HRIYY        REAL      ARRAY                 REFS        53       169   DEFINED     102
    375  HRIZZ        REAL      ARRAY                 REFS        53       170   DEFINED     102
    313  H2OMOMX      REAL                            REFS       185   DEFINED       175
    314  H2OMOMZ      REAL                            REFS       187   DEFINED       176
    307  H2ORXX       REAL                            REFS       203   DEFINED       168
    312  H2ORXZ       REAL                            REFS       206   DEFINED       171
    310  H2ORYY       REAL                            REFS       204   DEFINED       169
    311  H2ORZZ       REAL                            REFS       205   DEFINED       170
    303  I            INTEGER                         REFS     2*145     2*148     2*151   DEFINED     144       147       150
   2353  ICON         REAL      ARRAY     FARRAY      REFS         8        26        53   DEFINED     210       211       212
                                                       213       214       215       216     217       218       219
    230  INITIAL      INTEGER             FARRAY      REFS        21       119
    306  IWA       *  INTEGER                         REFS       167
    304  IWT1      *  INTEGER                         REFS       156
   3432  PWATER       REAL                FARRAY      REFS        39       167       168     169       170       171       175
                                                       176       179
    364  PWT          REAL      ARRAY                 REFS        53       167   DEFINED      82
   2347  RIXX         REAL                FARRAY      REFS        26       203       209     212       215       218
```

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      SUBROUTINE WTBAL07     74/175  OPT=2                FTN 4.8+538       82/11/08. 19.01.59       PAGE     6

VARIABLES      SN  TYPE             RELOCATION
                                              DEFINED      157        203
  2352   RIXZ       REAL             FARRAY      REFS        26        206      2*209      211      212     2*213     216
                                                  219   DEFINED        160        206
  2350   RIYY       REAL             FARRAY      REFS        26        204        212      213      214       215     216
                                                  218   DEFINED        158        204
  2351   RIZZ       REAL             FARRAY      REFS        26        205        209      210      212     2*213     215
                                                  217       218        219    DEFINED      159      205
  2343   RMASS      REAL             FARRAY      REFS        26    DEFINED        181
   445   RMGEAR     REAL     ARRAY               REFS        70        185        186      187      203       204     205
                                                  206   DEFINED        145        148
   427   RMGEART    REAL     ARRAY               REFS        70        148    DEFINED      113
   454   RMLIDS     REAL     ARRAY               REFS        70        185        186      187      203       204     205
                                                  206   DEFINED        145        151
   436   RMLIDST    REAL     ARRAY               REFS        70        151    DEFINED      113
   320   TEMP       REAL                         REFS       210        211        212      213  DEFINED       209
   315   TOTMOMX    REAL                         REFS       192    DEFINED        185
   316   TOTMOMY    REAL                         REFS       193    DEFINED        186
   317   TOTMOMZ    REAL                         REFS       194    DEFINED        187
  2342   WEIGHT     REAL             FARRAY      REFS        26        181        192      193      194
                                              DEFINED       179

EXTERNALS           TYPE     ARGS       REFERENCES
        FSRCH                 5            156       167
        FIB         REAL      4            157       158        159        160        163      164      168       169     170
                                           171       175        176

STATEMENT LABELS             DEF LINE    REFERENCES
    10  1                       140         119
     0  10                      145         144
    22  20                      149         146
     0  30                      148         147
    30  40                      152         149
     0  50                      151         150

LOOPS   LABEL     INDEX      FROM-TO     LENGTH      PROPERTIES
   11   10        I          144  145      38         INSTACK
   17   30        I          147  148      38         INSTACK
   25   50        I          150  151      38         INSTACK

COMMON  BLOCKS    LENGTH
        FARRAY     2000

STATISTICS
  PROGRAM LENGTH               467B      311
  CM LABELED COMMON LENGTH    3720B     2000
          160000B CM USED
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      SUBROUTINE TEOM1(N)

***
*  THIS SUBROUTINE IS PART 1 OF THE TRANSLATIONAL EQUATIONS OF MOTION.
*
*  THE CALL ARGUMENT IS (N):
*  N       AIRCRAFT NUMBER (1,2,3,...M WHERE M IS THE TOTAL NUMBER OF
*          AIRCRAFT).
*
*
* E-ARRAY INPUT DEFINITIONS
*
* DTOR     DEGREES TO RADIANS CONVERSION FACTOR
* RTOD     RADIANS TO DEGREES CONVERSION FACTOR
* OMEGAD   EARTH ROTATIONAL RATE IN DEGREES/SECOND
* OMEGAR   EARTH ROTATIONAL RATE IN RADIANS/SECOND
* REARTH   POLAR AXIS OF EARTH MODEL REFERENCE ELLIPSOID IN FEET
* ESQ      ECCENTRICITY OF EARTH MODEL REFERENCE ELLIPSOID
* GRAV     GRAVITATIONAL CONSTANT IN FEET**3/SECOND**2
* TIME     SIMULATION RUNNING TIME IN SECONDS
* IRESET   RESET FLAG
*
* A-ARRAY INPUT DEFINITIONS
*
* XD       AIRCRAFT N INERTIAL VELOCITY COMPONENTS IN FEET/SECOND
* X        AIRCRAFT N INERTIAL X POSITION COMPONENT IN FEET
* Y        AIRCRAFT N INERTIAL Y POSITION COMPONENT IN FEET
* Z        AIRCRAFT N INERTIAL Z POSITION COMPONENT IN FEET
* ATM      AIRCRAFT N SQUARE ROOT OF ONE HALF ATMOSPHERE DENSITY IN
*          SLUG/FOOT**3
* VS       AIRCRAFT N LOCAL SPEED OF SOUND IN FEET/SECOND
* WN       AIRCRAFT N WIND NORTH-EAST-DOWN COMPONENTS IN FEET/SECOND
*
* A-ARRAY OUTPUT DEFINITIONS
*
* RCOSL    AIRCRAFT N RAC PROJECTION ON INERTIAL X-Y PLANE IN FEET
* RAC      AIRCRAFT N RADIAL DISTANCE FROM CENTER OF THE EARTH IN FEET
* COSL     COSINE OF AIRCRAFT N LATITUDE
* SINL     SINE OF AIRCRAFT N LATITUDE
* COSLAM   COSINE OF AIRCRAFT N LONGITUDE
* SINLAM   SINE OF AIRCRAFT N LONGITUDE
* L        AIRCRAFT N LATITUDE IN DEGREES
* LAM      AIRCRAFT N INERTIAL LONGITUDE IN DEGREES
* LAMP     AIRCRAFT N LONGITUDE IN DEGREES
* RE       RADIUS OF EARTH IN FEET AT AIRCRAFT N LATITUDE
* H        AIRCRAFT N ALTITUDE IN FEET
* CNE      AIRCRAFT N INERTIAL TO NORTH-EAST-DOWN TRANSFORMATION MATRIX
* VIN      AIRCRAFT N NORTH-EAST-DOWN INERTIAL VELOCITY COMPONENTS IN
*          FEET/SECOND
* VGN      AIRCRAFT N VELOCITY RELATIVE TO EARTH NORTH COMPONENT IN
*          FEET/SECOND
* VGE      AIRCRAFT N VELOCITY RELATIVE TO EARTH EAST COMPONENT IN
*          FEET/SECOND
* VGD      AIRCRAFT N VELOCITY RELATIVE TO EARTH DOWN COMPONENT IN
*          FEET/SECOND
*
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* VN      AIRCRAFT N RELATIVE VELOCITY NORTH COMPONENT IN FEET/SECOND     FOM        58
* VE      AIRCRAFT N RELATIVE VELOCITY EAST COMPONENT IN FEET/SECOND      FOM        59
* VD      AIRCRAFT N RELATIVE VELOCITY DOWN COMPONENT IN FEET/SECOND      FOM        60
* VT      AIRCRAFT N TRUE AIRSPEED IN FEET/SECOND                         FOM        61
* GAM     AIRCRAFT N VERTICAL FLIGHT PATH ANGLE WRT WIND IN DEGREES       FOM        62
* SIG     AIRCRAFT N HORIZONTAL FLIGHT PATH ANGLE WRT WIND IN DEGREES     FOM        63
* COSGAM  COSINE OF AIRCRAFT N VERTICAL FLIGHT PATH ANGLE                 FOM        64
* SINGAM  SINE OF AIRCRAFT N VERTICAL FLIGHT PATH ANGLE                   FOM        65
* COSSIG  COSINE OF AIRCRAFT N HORIZONTAL FLIGHT PATH ANGLE               FOM        66
* SINSIG  SINE OF AIRCRAFT N HORIZONTAL FLIGHT PATH ANGLE                 FOM        67
* VG      AIRCRAFT N GROUND SPEED IN FEET/SECOND                          FOM        68
* PSIT    AIRCRAFT N GROUND TRACK ANGLE IN DEGREES                        FOM        69
* QBAR    AIRCRAFT N DYNAMIC PRESSURE IN POUNDS/FOOT**2                   FOM        70
* MACH    AIRCRAFT N MACH NUMBER                                          FOM        71
* GX      X-INERTIAL GRAVITY COMPONENT IN FEET/SECOND**2 AT AIRCRAFT N    FOM        72
*         POSITION                                                        FOM        73
* GY      Y-INERTIAL GRAVITY COMPONENT IN FEET/SECOND**2 AT AIRCRAFT N    FOM        74
*         POSITION                                                        FOM        75
* GZ      Z-INERTIAL GRAVITY COMPONENT IN FEET/SECOND**2 AT AIRCRAFT N    FOM        76
*         POSITION                                                        FOM        77
* VTI     INVERSE OF AIRCRAFT N TRUE AIRSPEED IN SECONDS/FOOT             FOM        78
* FTPDLA  FEET PER DEGREE LATITUDE                                        FOM        79
* FTPDLO  FEET PER DEGREE LONGITUDE                                       FOM        80
***                                                                       FOM        81
                                                                          FOM        82
*                                                                         FOM        83
* TYPE STATEMENT(S)                                                       FOM        84
*                                                                         FOM        85
      REAL MACH, LAM, LAMP , L                                            FOM        86
*                                                                         FOM        87
* COMMON STATEMENT(S)                                                     FOM        88
*                                                                         FOM        89
      COMMON / FARRAY / F(1001)                                           FOM        90
*                                                                         FOM        91
* EQUIVALENCE STATEMENT(S)                                                FOM        92
*                                                                         FOM        93
      EQUIVALENCE (A,F(1001))                                             FOM        94
                                                                          FOM        95
      EQUIVALENCE                                                         FOM        96
     .(DTOR    ,F( 91)),(RTOD    ,F( 92)),(OMEGAD  ,F(101)),              FOM        97
     .(OMEGAP  ,F(102)),(REARTH  ,F(103)),(TSD     ,F(104)),              FOM        98
     .(GRAV    ,F(105)),(TIME    ,F(151)),(TREFSET ,F(155))               FOM        99
                                                                          FOM       100
      EQUIVALENCE                                                         FOM       101
     .(RCOSL   ,A(  1)),(RAC     ,A(  2)),(COSL    ,A(  3)),              FOM       102
     .(SINL    ,A(  4)),(COSLAM  ,A(  5)),(SINLAM  ,A(  6)),              FOM       103
     .(L       ,A(  7)),(LAM     ,A(  8)),(LAMP    ,A(  9)),              FOM       104
     .(RE      ,A( 10)),(H       ,A( 11)),(CNX     ,A( 12)),              FOM       105
     .(VTN     ,A( 21)),(VGN     ,A( 24)),(VCE     ,A( 25)),              FOM       106
     .(VGD     ,A( 26)),(VN      ,A( 27)),(VE      ,A( 28)),              FOM       107
     .(VD      ,A( 29)),(VT      ,A( 30)),(GAM     ,A( 31)),              FOM       108
     .(SIG     ,A( 32)),(COSGAM  ,A( 33)),(SINGAM  ,A( 34)),              FOM       109
     .(COSSIG  ,A( 35)),(SINSIG  ,A( 36)),(VG      ,A( 37)),              FOM       110
     .(PSIT    ,A( 38)),(QBAR    ,A( 39)),(MACH    ,A( 40)),              FOM       111
     .(GX      ,A( 41)),(GY      ,A( 42)),(GZ      ,A( 43)),              FOM       112
     .(VTI     ,A( 44)),(FTPDLA  ,A( 45)),(FTPDLO  ,A( 46)),              FOM       113
     .(K       ,A( 66)),(X       ,A( 75)),(Y       ,A( 76)),              FOM       114
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     .(Z      ,A( 77)),(ATM    ,A(176)),(VS     ,A(177)),
     .(WN     ,A(201))
*
* DIMENSION STATEMENT(S)
*
      DIMENSION A(1000)
      DIMENSION
     .RCOSL(1)   ,RAC(1)   ,COSL(1)   ,SINL(1)   ,COSLAM(1) ,
     .SINLAM(1)  ,L(1)     ,LAM(1)    ,LAMR(1)   ,RE(1)     ,
     .H(1)       ,CNX(1)   ,VTN(1)    ,VGN(1)    ,VGF(1)    ,
     .VGD(1)     ,VN(1)    ,VE(1)     ,VD(1)     ,VT(1)     ,
     .CA4(1)     ,SIG(1)   ,COSGAM(1) ,SINGAM(1) ,COSSIG(1) ,
     .SINSIG(1)  ,VC(1)    ,PSIT(1)   ,QBAR(1)   ,MACH(1)   ,
     .CX(1)      ,GY(1)    ,GZ(1)     ,VTT(1)    ,FTPOLA(1) ,
     .FTPOLO(1)  ,XO(1)    ,X(1)      ,Y(1)      ,Z(1)      ,
     .ATM(1)     ,VS(1)    ,WN(1)
*
* DATA STATEMENT(S)
*
      DATA
     .     OMEGAD / 4.178074203-3 /,
     .     OMEGAR / 7.292115099-5 /,
     .     REARTH / 20855591.     /,
     .     CS2    / 0.0066934229  /,
     .     GRAV   / 1.407654E16   /
*
* COMPUTE AIRCRAFT INDICES
*
      I = N*1000 -999
      I2 = I+2
*
* CHECK RESET FLAG
*
      IF(IRESET.NE.0) GO TO 4

      RAC(I) = X(I)*X(I) + Y(I)*Y(I)
      RCOSL(I) = SQRT(RAC(I))
      RAC(I) = SQRT(RAC(I) + Z(I)*Z(I))

      COSL(I) = RCOSL(I)/RAC(I)
      SINL(I) = Z(I)/RAC(I)
      COSLAM(I) = X(I)/RCOSL(I)
      SINLAM(I) = Y(I)/RCOSL(I)

      L(I) = ATAN2(Z(I),RCOSL(I)) * RTOD
      LAM(I) = ATAN2(Y(I),X(I)) * RTOD
      LAMR(I) = LAM(I) - OMEGAD*TIME

      RE(I) = REARTH/SQRT(1. - CS2*COSL(I)*COSL(I))
      H(I) = RAC(I) - RE(I)

    1 CONTINUE
      FTPOLA(I) = DTOR*RE(I)
      FTPOLO(I) = FTPOLA(I)*COSL(I)
```

```
      CNX(I  ) = -SINL(I)*COSLAM(I)
      CNX(I+3) = -SINL(I)*SINLAM(I)
      CNX(I+6) = COSL(I)
      CNX(I+1) = -SINLAM(I)
      CNX(I+4) = COSLAM(I)
*     CNX(I+7) = 0.0
      CNX(I+2) = -COSL(I)*COSLAM(I)
      CNX(I+5) = -COSL(I)*SINLAM(I)
      CNX(I+8) = -SINL(I)
*
* CHECK RESET FLAG
*
      IF(IRESET.NE.0) GO TO 5

      CALL FMMPLY(VIN(I),CNX(I),XO(I),1,0)

      DO 2 JJ=I,I2
      VGI(JJ)=VIN(JJ)
      IF(JJ.EQ.(I+1)) VGN(JJ)=VGN(JJ)-RAC(I)*COSL(I)*OMEGAR
      VN(JJ) = VGN(JJ) - WN(JJ)
    2 CONTINUE

      VNVE = VN(I)*VN(I) + VE(I)*VE(I)
      VT(I) = SQRT(VNVE + VD(I)*VD(I))

      IF(VT(I) .LT. 0.001) GO TO 3
      VTI(I) = 1.0/VT(I)

      VNVE = SQRT(VNVE)

      SINGAM(I) = -VD(I)*VTI(I)
      COSGAM(I) = VNVE*VTI(I)

      SINSIG(I) = VE(I)/VNVE
      COSSIG(I) = VN(I)/VNVE

      GAM(I) = RTOD*ASIN(SINGAM(I))
      SIG(I) = ATAN2(VE(I),VN(I)) * RTOD
      IF(SIG(I) .LT. 0.0) SIG(I) = SIG(I) + 360.0

    3 CONTINUE

      VG(I) = SQRT(VGN(I)*VGN(I) + VGE(I)*VGE(I))
      PSI(I) = ATAN2(VGE(I),VGN(I)) * RTOD
      IF(PSI(I) .LT. 0.0) PSI(I) = PSI(I) + 360.0
*
* CALL ATMOSPHERE SUBROUTINE
*
      CALL ATMOS(I)

      QBAR(I) = ATM(I)*ATM(I)*VT(I)*VT(I)
      MACH(I) = VT(I)/VS(I)

      GZ(I) = -GRAV/(RAC(I)*RAC(I)*RAC(I))
      GX(I) = GZ(I)*X(I)
      GY(I) = GZ(I)*Y(I)
      GZ(I) = GZ(I)*Z(I)
```

```
SUBROUTINE FORM1        74/175   OPT=2                    FTN 4.8+538        82/10/22. 15.12.58        PAGE     5

              RETURN

            4 LAM(I) = LAMB(I)
              SINLAM(I) = SIND(LAM(I))
              COSLAM(I) = COSD(LAM(I))
              SINL(I) = SIND(L(I))
              COSL(I) = COSD(L(I))

              RE(I) = REARTH/SQRT(1. - ESQ*COSL(I)*COSL(I))
              RAC(I) = RE(I) + H(I)

              X(I) = RAC(I)*COSL(I)*COSLAM(I)
              Y(I) = RAC(I)*COSL(I)*SINLAM(I)
              Z(I) = RAC(I)*SINL(I)
              CMX(I+7) = 0.
              GO TO 1

            5 IF(VT(I) .LT. 0.001) VT(I) = 0.001
              VT(I) = 1.0/VT(I)

              SINGAM(I) = SIND(GAM(I))
              COSGAM(I) = COSD(GAM(I))
              SINSIG(I) = SIND(SIG(I))
              COSSIG(I) = COSD(SIG(I))

              VN(I) = VT(I)*COSGAM(I)*COSSIG(I)
              VE(I) = VT(I)*COSGAM(I)*SINSIG(I)
              VD(I) = -VT(I)*SINGAM(I)

              DO 6 JJ=I,I2
              VGN(JJ) = VN(I) + WN(I)
              VIN(JJ) = VGN(JJ)
            6 CONTINUE
              VIN(I+1) = VIN(I+1) + RAC(I)*COSL(I)*OMEGAR

              CALL FMMPLY(XD(I),CMX(I),VIN(I),1,1)

              GO TO 3

              END


      SYMBOLIC REFERENCE MAP (R=2)

 ENTRY POINTS      DEF LINE      REFERENCES
    3  FORM1           1            233

 VARIABLES      SN   TYPE            RELOCATION
  1750  A            REAL        ARRAY      F.P.ARRAY      REFS       96      43+101     120
  2227  AEM          REAL        ARRAY      F.P.ARRAY      REFS      101       122      2*222
   145  AEARTH       REAL                   F.P.ARRAY      REFS       96       165      238     DEFINED     135
  1763  CMX          REAL        ARRAY      F.P.ARRAY      REFS      101       122      185        265  DEFINED     172     173
                                                                     174       175      176      178        179      180     244
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          SUBROUTINE TFOM1          74/175   OPT=2                         FTN 4.6+538          82/10/22. 15.12.58          PAGE      6

VARIABLES        SN   TYPE              RELOCATION
  2013   COSGAM       REAL          ARRAY     FARRAY       REFS        101        122        255        256    DEFINED        203      251
  1752   COSL         REAL          ARRAY     FARRAY       REFS        101        122      2*165        170        174        179      179
                                                             190      2*238        241        242        263    DEFINED        156      236
  1764   COSLAM       REAL          ARRAY     FARRAY       REFS        101        122        172        176        178        241
                                                         DEFINED        158        234
  2012   COSSIG       REAL          ARRAY     FARRAY       REFS        101        122        255    DEFINED        206        253
   132   DTOR         REAL                    FARRAY       REFS         96        169
   147   E50          REAL                    FARRAY       REFS         96        165        238    DEFINED        135
     0   E            REAL          ARRAY     FARRAY       REFS         90         94       5*36
  2024   ETODLA       REAL          ARRAY     FARRAY       REFS        101        122        170    DEFINED        169
  2025   ETODLT       REAL          ARRAY     FARRAY       REFS        101        122    DEFINED        170
  2036   GAM          REAL          ARRAY     FARRAY       REFS        101        122        250        251    DEFINED        208
   150   GRAV         REAL                    FARRAY       REFS         96        225    DEFINED        135
  2020   GX           REAL          ARRAY     FARRAY       REFS        101        122    DEFINED        226
  2021   GY           REAL          ARRAY     FARRAY       REFS        101        122    DEFINED        227
  2022   GZ           REAL          ARRAY     FARRAY       REFS        101        122        226        227        228
                                                         DEFINED        225        228
  1762   H            REAL          ARRAY     FARRAY       REFS        101        122        239    DEFINED        166
   304   I            INTEGER                              REFS        146      5*152      2*153      4*154      3*156      3*157    3*158
                                                           3*159      3*161      3*162      2*163      3*165      3*166      2*169    3*170
                                                           3*172      3*173      2*174      2*175      2*176      3*178      3*179    2*180
                                                           3*186        198      3*190      4*194      3*195        197      2*198    3*202
                                                           2*203      2*205      2*206      2*208      3*209      3*210      5*214    3*215
                                                           3*216        220      5*222      3*223      4*225      3*226      3*227    3*228
                                                           2*232      2*233      2*234      2*235      2*236      3*238      3*239    4*241
                                                           4*242      3*243        244      2*247      2*248      2*250      2*251    2*252
                                                           2*253      4*255      4*256      3*257        259      4*263      3*265
                                                         DEFINED        145
   232   IRESET       INTEGER                 FARRAY       REFS         96        150        184
   305   I2           INTEGER                              REFS        188        259    DEFINED        146
   306   I1           INTEGER                              REFS      2*189      3*190      3*191      3*260      2*261
                                                         DEFINED        188        259
  1756   L            REAL          ARRAY     FARRAY       REFS         86        101        122        235        236
                                                         DEFINED        161
  1757   LAM          REAL          ARRAY     FARRAY       REFS         86        101        122        163        233        234
                                                         DEFINED        162        232
  1750   LAMR         REAL          ARRAY     FARRAY       REFS         86        101        122        232    DEFINED        163
  2017   MACH         REAL          ARRAY     FARRAY       REFS         86        101        122    DEFINED        223
     0   N            INTEGER                 F.P.         REFS        145    DEFINED          1
   144   OMEGAD       REAL                    FARRAY       REFS         96        163    DEFINED        135
   145   OMEGAP       REAL                    FARRAY       REFS         96        190        263    DEFINED        135
  2015   OSIT         REAL          ARRAY     FARRAY       REFS        101        122      2*216    DEFINED        215      216
  2016   QBAR         REAL          ARRAY     FARRAY       REFS        101        122    DEFINED        222
  1751   RAD          REAL          ARRAY     FARRAY       REFS        101        122        153        154        156      157      166
                                                             150      3*225        241        242        243        263
                                                         DEFINED        152        154        239
  1759   RADSL        REAL          ARRAY     FARRAY       REFS        101        122        156        158        159      161
                                                         DEFINED        153
  1761   RE           REAL          ARRAY     FARRAY       REFS        101        122        166        169        230
                                                         DEFINED        165        238
   133   RTOD         REAL                    FARRAY       REFS         96        161        162        206        209      216
  2007   SIG          REAL          ARRAY     FARRAY       REFS        101        122      2*210        252        253
                                                         DEFINED        209        210
  2011   SINGAM       REAL          ARRAY     FARRAY       REFS        101        122        208        257    DEFINED      202      250
  1753   SINL         REAL          ARRAY     FARRAY       REFS        101        122        172        173        180      243
                                                         DEFINED        157        235
  1765   SINLAM       REAL          ARRAY     FARRAY       REFS        101        122        173        176        179      242
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          SUBROUTINE TFCN1        74/175   OPT=2                                   FTN 4.8+538        82/10/22. 15.12.59        PAGE      7

VARIABLES         SN   TYPE               RELOCATION
                                                         DEFINED        159        233
  2013   SINSIG        REAL        ARRAY       FARRAY       REFS         101        122        256      DEFINED       205        252
   226   TIME          REAL                    FARRAY       REFS          96        163
  2035   VO            REAL        ARRAY       FARRAY       REFS         101        122        2*195       202      DEFINED      257
  2003   VC            REAL        ARRAY       FARRAY       REFS         101        122        2*194       205        209
                                                         DEFINED        256
  2014   VG            REAL        ARRAY       FARRAY       REFS         101        122      DEFINED       214
  2001   VGO           REAL        ARRAY       FARRAY       REFS         101        122
  2000   VGS           REAL        ARRAY       FARRAY       REFS         101        122        2*214       215
  1777   VGN           REAL        ARRAY       FARRAY       REFS         101        122        190         191        2*214      215      261
                                                         DEFINED        189        190        260
  1774   VIN           REAL        ARRAY       FARRAY       REFS         101        122        186         189        263        265
                                                         DEFINED        261        263
  2032   VN            REAL        ARRAY       FARRAY       REFS         101        122        2*194       206        209        260
                                                         DEFINED        161        255
   307   VNVE          REAL                                 REFS         195        200        203         205        206
                                                         DEFINED        194        200
  2230   VS            REAL        ARRAY       FARRAY       REFS         101        122        223
  2005   VT            REAL        ARRAY       FARRAY       REFS         101        122        197         198        2*222      223      247
                                                              248        255        256        257      DEFINED       195        247
  2023   VTT           REAL        ARRAY       FARRAY       REFS         101        122        202         203      DEFINED      198      249
  2253   WN            REAL        ARRAY       FARRAY       REFS         101        122        191         260
  2052   X             REAL        ARRAY       FARRAY       REFS         101        122        2*152       158        162        226
                                                         DEFINED        241
  2051   XD            REAL        ARRAY       FARRAY       REFS         101        122        186         265
  2253   Y             REAL        ARRAY       FARRAY       REFS         101        122        2*152       150        162        227
                                                         DEFINED        242
  2064   Z             REAL        ARRAY       FARRAY       REFS         101        122        2*154       157        161        228
                                                         DEFINED        243

EXTERNALS              TYPE     ARGS            REFERENCES
          ASIN         REAL       1 LIBRARY        208
          ATAN2        REAL       2 LIBRARY        161        162        209        215
          ATMOS                   1                220
          COSD         REAL       1 LIBRARY        234        236        251        253
          ENMBLY                  5                186        265
          SIND         REAL       1 LIBRARY        233        235        250        252
          SQRT         REAL       1 LIBRARY        153        154        165        195        200        214        238

STATEMENT LABELS                       DEF LINE    REFERENCES
     51   1                               160         245
      0   2                               192         198
    140   3                               212         197        267
    157   4                               232         150
    216   5                               247         184
      0   6                               262         259

LOOPS   LABEL       INDEX        FROM-TO       LENGTH       PROPERTIES
   77   2           II           186 192         10B         INSTACK
  243   6           II           259 262          4B         INSTACK

COMMON BLOCKS    LENGTH
         FARRAY     2000

STATISTICS
  PROGRAM LENGTH                          310B        200
  CM LABELED COMMON LENGTH               3720B       2000
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      SUBROUTINE TEOM2(N)                                              EOM  270
*                                                                      EOM  271
*                                                                      EOM  272
*                                                                      EOM  273
***                                                                    EOM  274
*  THIS SUBROUTINE IS PART 2 OF THE TRANSLATIONAL EQUATIONS OF MOTION. EOM  275
*                                                                      EOM  276
*  THE CALL ARGUMENT IS (N):                                           EOM  277
*  N      AIRCRAFT NUMBER (1,2,3,...,M WHERE M IS THE TOTAL NUMBER OF  EOM  278
*         AIRCRAFT).                                                   EOM  279
*                                                                      EOM  280
*                                                                      EOM  281
* E-ARRAY INPUT DEFINITIONS                                            EOM  282
*                                                                      EOM  283
* A1      EOM INTEGRATION CONSTANT OF PRESENT VALUE                    EOM  284
* A2      EOM INTEGRATION CONSTANT OF FIRST PAST VALUE                 EOM  285
* A3      EOM INTEGRATION CONSTANT OF SECOND PAST VALUE                EOM  286
* CDT     CURRENT UPDATE TIME INCREMENT IN SECONDS                     EOM  287
* INHIT   INHIBIT TERM INTEGRATIONS                                    EOM  288
* IRESET  RESET FLAG                                                   EOM  289
*                                                                      EOM  290
* A-ARRAY INPUT DEFINITIONS                                            EOM  291
*                                                                      EOM  292
* CX      INERTIAL GRAVITY COMPONENTS IN FEET/SECOND**2 AT AIRCRAFT N  EOM  293
*         POSITION                                                     EOM  294
* CXX     AIRCRAFT N INERTIAL TO BODY TRANSFORMATION MATRIX            EOM  295
* MASS    AIRCRAFT N TOTAL MASS IN SLUGS                               EOM  296
* AEROX   AIRCRAFT N AERODYNAMIC FORCE BODY COMPONENTS IN POUNDS       EOM  297
* THX     AIRCRAFT N THRUST FORCE BODY COMPONENTS IN POUNDS            EOM  298
* GCX     AIRCRAFT N GEAR/GUN FORCE BODY COMPONENTS IN POUNDS          EOM  299
*                                                                      EOM  300
* A-ARRAY OUTPUT DEFINITIONS                                           EOM  301
*                                                                      EOM  302
* AXB     AIRCRAFT N ACCELERATION EXCLUDING GRAVITY BODY COMPONENTS IN EOM  303
*         FEET/SECOND**2                                               EOM  304
* AX      AIRCRAFT N ACCELERATION EXCLUDING GRAVITY INERTIAL COMPONENTS EOM 305
*         IN FEET/SECOND**2                                            EOM  306
* XDD     AIRCRAFT N INERTIAL ACCELERATION INERTIAL COMPONENTS IN      EOM  307
*         FEET/SECOND**2                                               EOM  308
* XDD1    AIRCRAFT N XDD FIRST PAST VALUE COMPONENTS IN FEET/SECOND**2 EOM  309
* XDD2    AIRCRAFT N XDD SECOND PAST VALUE COMPONENTS IN FEET/SECOND**2 EOM 310
* XD      AIRCRAFT N INERTIAL VELOCITY INERTIAL COMPONENTS IN          EOM  311
*         FEET/SECOND                                                  EOM  312
* XD1     AIRCRAFT N XD FIRST PAST VALUE COMPONENTS IN FEET/SECOND     EOM  313
* XD2     AIRCRAFT N XD SECOND PAST VALUE COMPONENTS IN FEET/SECOND    EOM  314
* X       AIRCRAFT N INERTIAL X POSITION COMPONENT IN FEET             EOM  315
* Y       AIRCRAFT N INERTIAL Y POSITION COMPONENT IN FEET             EOM  316
* Z       AIRCRAFT N INERTIAL Z POSITION COMPONENT IN FEET             EOM  317
***                                                                    EOM  318
*                                                                      EOM  319
*                                                                      EOM  320
* TYPE STATEMENT(S)                                                    EOM  321
*                                                                      EOM  322
      REAL MASS                                                        EOM  323
*                                                                      EOM  324
* COMMON STATEMENT(S)                                                  EOM  325
*                                                                      EOM  326
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SUBROUTINE FFDM2        74/175  OPT=2                     FTN 4.8+538        82/10/22. 15.12.50        PAGE    2

      COMMON / FARRAY / F(1000)
*
* EQUIVALENCE STATEMENT(S)
*
      EQUIVALENCE (A,F(1001))

      EQUIVALENCE
     .(A1     ,F(1021)),(A2     ,F(1101)),(A3     ,F(1111)),
     .(COT    ,F(1191)),(INHT   ,F(1361)),(IRESET ,F(1551))

      EQUIVALENCE
     .(GY     ,A( 41)),(AX3     ,A( 51)),(AX      ,A( 54)),
     .(XDD    ,A( 57)),(XDD1    ,A( 60)),(XDD2    ,A( 63)),
     .(XD     ,A( 66)),(XD1     ,A( 69)),(XD2     ,A( 72)),
     .(X      ,A( 75)),(Y       ,A( 76)),(Z       ,A( 77)),
     .(CXX    ,A( 84)),(MASS    ,A(262)),(AEROX   ,A(326)),
     .(THX    ,A(751)),(GGX     ,A(676))
*
* DIMENSION STATEMENT(S)
*
      DIMENSION A(1000)

      DIMENSION
     .GX(1)       ,AX3(1)      ,AX(1)       ,XDD(1)      ,XDD1(1)      ,
     .XDD2(1)     ,X3(1)       ,XD1(1)      ,XD2(1)      ,X(1)         ,
     .Y(1)        ,Z(1)        ,CXX(1)      ,MASS(1)     ,AEROX(1)     ,
     .THX(1)      ,GGX(1)
*
* DATA STATEMENT(S)
*
      DATA
     .     A1 /  1.916666666 /,
     .     A2 / -1.333333333 /,
     .     A3 /   .416666666 /
*
* COMPUTE AIRCRAFT INDICES
*
      I = N*1000 -999
      I2 = I+2
*
* CHECK RESET AND INITIATE TRANSLATIONAL EOM FLAGS
*
      DTI = COT
      IF((IRESET.NE.0).OR.(INHT.NE.0)) DTI=0.
      A1DT = A1*DTI
      A2DT = A2*DTI
      A3DT = A3*DTI

      DO 1 JJ=I,I2
      AX3(JJJ) = (AEROX(JJ) + THX(JJ) + GGX(JJ))/MASS(I)
      XD2(JJ) = XD1(JJ)
      XD1(JJ) = XD(JJ)
      XDD2(JJ) = XDD1(JJ)
      XDD1(JJ) = XDD(JJ)
    1 CONTINUE
```

ORIGINAL PAGE IS
OF POOR QUALITY

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SUBROUTINE TERM2      74/175  OPT=2                      FTN 4.6+535        82/10/22. 15.12.58        PAGE     2

116                CALL EMMPLY(AX(I),CXY(I),AXR(I),1,1)                         EQM       384
                                                                                EQM       385
                   DO 2 JJ=I,I2                                                 EQM       386
                   XD0(JJ) = AY(JJ) + CX(JJ)                                    EQM       387
                   XD(JJ) = XD(JJ) + A10T*XD0(JJ) + A20T*XDD1(JJ) + A30T*XDD2(JJ)  EQM    388
120                X(JJ) = X(JJ) + A10T*XD(JJ) + A20T*XD1(JJ) + A30T*XD2(JJ)    EQM       389
                 2 CONTINUE                                                     EQM       390
                                                                                EQM       391
                   RETURN                                                       EQM       392
                   END                                                          EQM       393


     SYMBOLIC REFERENCE MAP (R=2)

ENTRY POINTS     DEF LINE     REFERENCES
    3  TERM2         1           123

VARIABLES       SN   TYPE             RELOCATION
   1757  A           REAL       ARRAY   F.ARRAY    REFS      62      17*69     79
   2455  ACPIX       REAL       ARRAY   F.ARRAY    REFS      68      80        108
   2335  AX          REAL       ARRAY   F.ARRAY    REFS      68      80        115       118
   2332  AXR         REAL       ARRAY   F.ARRAY    REFS      68      80        115       DEFINED   108
    154  A1          REAL               F.ARRAY    REFS      64      103       DEFINED   98
     77  A10T        REAL                          REFS      119     120       DEFINED   103
    155  A2          REAL               F.ARRAY    REFS      64      104       DEFINED   88
    130  A20T        REAL                          REFS      119     120       DEFINED   104
    156  A3          REAL               F.ARRAY    REFS      64      105       DEFINED   98
    101  A30T        REAL                          REFS      119     120       DEFINED   105
    166  C0T         REAL               F.ARRAY    REFS      64      101
   2073  CXY         REAL       ARRAY   F.ARRAY    REFS      68      80        115
     76  DT1         REAL                          REFS      103     104       105       DEFINED   101       102
      9  E           REAL       ARRAY   F.ARRAY    REFS      58      62        6*64
   3523  GGX         REAL       ARRAY   F.ARRAY    REFS      68      80        108
   2020  GY          REAL       ARRAY   F.ARRAY    REFS      68      80        119
     74  I           INTEGER                       REFS      97      107       108       3*115     117
                                               DEFINED       96
    227  IMUT        INTEGER            F.ARRAY    REFS      64      102
    232  IRESET      INTEGER            F.ARRAY    REFS      64      102
     75  I2          INTEGER                       REFS      107     117       DEFINED   97
    192  JJ          INTEGER                       REFS      4*108   2*109     2*110     2*111     2*112     3*118     5*119
                                                             6*120   DEFINED   107       117
   2343  MASS        REAL       ARRAY   F.ARRAY    REFS      54      68        80        108
      9  N           INTEGER            F.P.       REFS      56      DEFINED   1
   3326  TIX         REAL       ARRAY   F.ARRAY    REFS      68      80        109
   2362  X           REAL       ARRAY   F.ARRAY    REFS      68      80        120       DEFINED   120
   2051  X0          REAL       ARRAY   F.ARRAY    REFS      68      80        110       119       120
                                               DEFINED       119
   2040  XD0         REAL       ARRAY   F.ARRAY    REFS      68      80        112       119       DEFINED   118
   2043  XDD1        REAL       ARRAY   F.ARRAY    REFS      68      80        111       110       DEFINED   112
   2046  XDD2        REAL       ARRAY   F.ARRAY    REFS      68      80        119       DEFINED   111
   2054  XD1         REAL       ARRAY   F.ARRAY    REFS      68      80        109       120       DEFINED   110
   2057  XD2         REAL       ARRAY   F.ARRAY    REFS      68      80        120       DEFINED   109
   2063  Y           REAL       ARRAY   F.ARRAY    REFS      68      80
   2064  Z           REAL       ARRAY   F.ARRAY    REFS      68      80
```

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        SUBROUTINE E D42        74/175  OPT=2                          FTN 4.8+536        82/10/22. 15.12.59        PAGE     4

EXTERNALS             TYPE   ARGS        REFERENCES
        EMMPLY                 5                 115

STATEMENT LABELS                     DEF LINE    REFERENCES
    0  1                                113          107
    0  2                                121          117

LOOPS   LABEL      INDEX       FROM-TO      LENGTH      PROPERTIES
   27   1          II          107 113        11B        INSTACK
   53   2          JJ          117 121        12B        INSTACK

COMMON BLOCKS     LENGTH
        EARRAY       2000

STATISTICS
  PROGRAM LENGTH                    103B        67
  CM LABELED COMMON LENGTH         3720B      2000
        140000B CM USED
```

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      74/175  OPT=2                          FTN 4.8+538       82/10/22. 15.12.58        PAGE     1

            SUBROUTINE REQM1(N)                                              FOM       395
                                                                             FOM       396
                                                                             FOM       397
                                                                             FOM       398
C***                                                                         FOM       399
C    THIS SUBROUTINE IS PART 1 OF THE ROTATIONAL EQUATIONS OF MOTION.         FOM       400
C                                                                            FOM       401
C    THE CALL ARGUMENT IS (N):                                               FOM       402
C    N        AIRCRAFT NUMBER (1,2,3,...,K WHERE K IS THE TOTAL NUMBER OF    FOM       403
C             AIRCRAFT).                                                     FOM       404
C                                                                            FOM       405
C                                                                            FOM       406
C    C-ARRAY INPUT DEFINITIONS                                               FOM       407
C                                                                            FOM       408
C    DTOR     DEGREES TO RADIANS CONVERSION FACTOR                           FOM       409
C    RTOD     RADIANS TO DEGREES CONVERSION FACTOR                           FOM       410
C    DDT      CURRENT UPDATE TIME INCREMENT IN SECONDS                       FOM       411
C    IRESET   RESET FLAG                                                     FOM       412
C                                                                            FOM       413
C    A-ARRAY INPUT DEFINITIONS                                               FOM       414
C                                                                            FOM       415
C    CNX      AIRCRAFT N INERTIAL TO NORTH-EAST-DOWN TRANSFORMATION MATRIX   FOM       416
C    VN       AIRCRAFT N RELATIVE VELOCITY NORTH-EAST-DOWN COMPONENTS IN     FOM       417
C             FEET/SECOND                                                    FOM       418
C    VT       AIRCRAFT N TRUE AIRSPEED IN FEET/SECOND                        FOM       419
C    VTI      INVERSE OF AIRCRAFT N TRUE AIRSPEED IN SECONDS/FOOT            FOM       420
C    E1       AIRCRAFT N FIRST QUATERNION VALUE                              FOM       421
C    E2       AIRCRAFT N SECOND QUATERNION VALUE                             FOM       422
C    E3       AIRCRAFT N THIRD QUATERNION VALUE                              FOM       423
C    E4       AIRCRAFT N FOURTH QUATERNION VALUE                             FOM       424
C                                                                            FOM       425
C    A-ARRAY OUTPUT DEFINITIONS                                              FOM       426
C                                                                            FOM       427
C    CXX      AIRCRAFT N INERTIAL TO BODY TRANSFORMATION MATRIX              FOM       428
C    CXN      AIRCRAFT N NORTH-EAST-DOWN TO BODY TRANSFORMATION MATRIX       FOM       429
C    PSI      AIRCRAFT N YAW ANGLE IN DEGREES                                FOM       430
C    THA      AIRCRAFT N PITCH ANGLE IN DEGREES                              FOM       431
C    PHI      AIRCRAFT N ROLL ANGLE IN DEGREES                               FOM       432
C    SINPSI   SINE OF AIRCRAFT N YAW ANGLE                                   FOM       433
C    COSPSI   COSINE OF AIRCRAFT N YAW ANGLE                                 FOM       434
C    SINTHA   SINE OF AIRCRAFT N PITCH ANGLE                                 FOM       435
C    COSTHA   COSINE OF AIRCRAFT N PITCH ANGLE                               FOM       436
C    SINPHI   SINE OF AIRCRAFT N ROLL ANGLE                                  FOM       437
C    COSPHI   COSINE OF AIRCRAFT N ROLL ANGLE                                FOM       438
C    U        AIRCRAFT N RELATIVE VELOCITY BODY COMPONENTS IN FEET/SECOND    FOM       439
C    ALPHA    AIRCRAFT N ANGLE OF ATTACK IN DEGREES                          FOM       440
C    BETA     AIRCRAFT N ANGLE OF SIDESLIP IN DEGREES                        FOM       441
C    SINALP   SINE OF AIRCRAFT N ANGLE OF ATTACK                             FOM       442
C    COSALP   COSINE OF AIRCRAFT N ANGLE OF ATTACK                           FOM       443
C    SINBET   SINE OF AIRCRAFT N ANGLE OF SIDESLIP                           FOM       444
C    COSBET   COSINE OF AIRCRAFT N ANGLE OF SIDESLIP                         FOM       445
C    ALPHAD   AIRCRAFT N ANGLE OF ATTACK RATE IN DEGREES/SECOND              FOM       446
C    ALPHAL   PAST VALUE OF AIRCRAFT N ANGLE OF ATTACK IN DEGREES            FOM       447
C    BETAD    AIRCRAFT N ANGLE OF SIDESLIP RATE IN DEGREES/SECOND            FOM       448
C    BETAL    PAST VALUE OF AIRCRAFT N ANGLE OF SIDESLIP IN DEGREES          FOM       449
C***                                                                         FOM       450
```

```
*
* COMMON STATEMENT(S)
*
      COMMON / FARRAY / F(1000)
*
* EQUIVALENCE STATEMENT(S)
*
      EQUIVALENCE (A,F(1001))

      EQUIVALENCE
     .(ROTOR   ,F(  91)),(RTOD    ,F(  92)),(PI      ,F(  93)),
     .(DT      ,F(1101)),(IRESET  ,F(1155))

      EQUIVALENCE
     .(CHX     ,A(  12)),(VN      ,A(  27)),(VT      ,A(  30)),
     .(VTI     ,A(  44)),(AYR     ,A(  52)),(AZR     ,A(  53)),
     .(CXX     ,A(  85)),(CXN     ,A(  93)),
     .(PSI     ,A( 102)),(THA     ,A( 103)),(PHI     ,A( 104)),
     .(SINPSI  ,A( 105)),(COSPSI  ,A( 106)),(SINTHA  ,A( 107)),
     .(COSTHA  ,A( 108)),(SINPHI  ,A( 109)),(COSPHI  ,A( 110)),
     .(U       ,A( 114)),(ALPHA   ,A( 117)),(BETA    ,A( 118)),
     .(SINALP  ,A( 119)),(COSALP  ,A( 120)),(SINBET  ,A( 121)),
     .(COSBET  ,A( 122)),(ALPHAD  ,A( 123)),(ALPHA1  ,A( 124)),
     .(BETAD   ,A( 125)),(BETA1   ,A( 126)),(P       ,A( 147)),
     .(Q       ,A( 148)),(R       ,A( 149)),(F1      ,A( 150)),
     .(F2      ,A( 151)),(F3      ,A( 152)),(F4      ,A( 153))
*
* DIMENSION STATEMENT(S)
*
      DIMENSION A(1000)

      DIMENSION
     .CNX(1)       ,VN(1)       ,VT(1)       ,VTI(1)      ,CXX(1)      ,
     .CXN(1)       ,PSI(1)      ,THA(1)      ,PHI(1)      ,SINPSI(1)   ,
     .COSPSI(1)    ,SINTHA(1)   ,COSTHA(1)   ,SINPHI(1)   ,COSPHI(1)   ,
     .U(1)         ,ALPHA(1)    ,BETA(1)     ,SINALP(1)   ,COSALP(1)   ,
     .SINBET(1)    ,COSBET(1)   ,ALPHAD(1)   ,ALPHA1(1)   ,BETAD(1)    ,
     .BETA1(1)     ,F1(1)       ,F2(1)       ,F3(1)       ,F4(1)       ,
     .TEMP(5)      ,P(1)        ,Q(1)        ,R(1)        ,AYR(1)      ,
     .AZR(1)
*
* COMPUTE AIRCRAFT INDICES
*
      I = N*1000 -997
*
* CHECK RESET FLAG
*
      IF(IRESET.NE.0) GO TO 2

      F11 = F1(I)*F1(I)
      F22 = F2(I)*F2(I)
      F33 = F3(I)*F3(I)
      F44 = F4(I)*F4(I)
      F12 = F1(I)*F2(I)
      F12 = F12+F12
      F13 = F1(I)*F3(I)
```

ORIGINAL PAGE IS
OF POOR QUALITY


```
      F13 = F13+F13
      F14 = F1(I)*F4(I)
      F14 = F14+F14
      F23 = F2(I)*F3(I)
      F23 = F23+F23
      F24 = F2(I)*F4(I)
      F24 = F24+F24
      F34 = F3(I)*F4(I)
      F34 = F34+F34

      CXX(I  ) = F11 + F22 - F33 - F44
      CXX(I+3) = F14 + F23
      CXX(I+6) = F24 - F13
      CXX(I+1) = F23 - F14
      CXX(I+4) = F11 - F22 + F33 - F44
      CXX(I+7) = F12 + F34
      CXX(I+2) = F13 + F24
      CXX(I+5) = F34 - F12
      CXX(I+8) = F11 - F22 - F33 + F44

      CALL FMTRAN(TEMP,CNX(I))

      CALL FMMPLY(CXU(I),CXX(I),TEMP,3,0)

      PSI(I) = ATAN2(CXN(I+3),CXN(I)) * RTOD
      THE(I) = RTOD*ASIN(-CXN(I+6))
      PHI(I) = ATAN2(CXN(I+7),CXN(I+8)) * RTOD
      SINTHA(I) =-CXN(I+6)
      COSTHA(I) = SQRT(1.0 - SINTHA(I)*SINTHA(I))
      IF(ABS(COSTHA(I)).LT..00001) COSTHA(I)=SIGN(.00001,COSTHA(I))
      TEMP(I) = 1.0/COSTHA(I)
      SINPSI(I) = CXN(I+3)*TEMP(I)
      COSPSI(I) = CXN(I)  *TEMP(I)
      SINPHI(I) = CXN(I+7)*TEMP(I)
      COSPHI(I) = CXN(I+8)*TEMP(I)

      IF(VT(I) .LT. 0.001) RETURN

    1 CONTINUE

      CALL FMMPLY(U(I),CXN(I),VN(I),1,0)

      VCOSA = SQRT(U(I)*U(I) + U(I+2)*U(I+2))
      SINBET(I) = U(I+1)/VT(I)
      COSBET(I) = VCOSA/VT(I)
      BETAL(I) = BETA(I)
      BETA(I) = RTOD*ASIN(U(I+1)/VT(I))
      BETAD(I) = (BETA(I) - BETAL(I))/DT
      SINALP(I) = U(I+2)/VCOSA
      COSALP(I) = U(I)/VCOSA
      ALPHAL(I) = ALPHA(I)
      ALPHA(I) = ATAN2(U(I+2),U(I)) * RTOD
      ALPHAD(I) = (U(I) * (AXB(I) + R(I)*U(I+1) - Q(I)*U(I+2))
     .          - U(I+2) * (AZB(I) + Q(I)*U(I) - P(I)*U(I+1)))
     .             * 180. / ((U(I)*U(I) + U(I+2)*U(I+2)) * PI)

      RETURN
```

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SUBROUTINE REOM1        74/175   OPT=2                FTN 4.8+538        82/10/22. 15.12.58        PAGE    4

                 2 CONTINUE
                   SINPSI(I) = SIND(PSI(I))
                   COSPSI(I) = COSD(PSI(I))
                   SINTHA(I) = SIND(THA(I))
                   COSTHA(I) = COSD(THA(I))
                   SINPHI(I) = SIND(PHI(I))
                   COSPHI(I) = COSD(PHI(I))

                   CXN(I  ) = COSPSI(I)*COSTHA(I)
                   CXN(I+3) = SINPSI(I)*COSTHA(I)
                   CXN(I+6) = -SINTHA(I)
                   CXN(I+1) = COSPSI(I)*SINTHA(I)*SINPHI(I) - SINPSI(I)*COSPHI(I)
                   CXN(I+4) = SINPSI(I)*SINTHA(I)*SINPHI(I) + COSPSI(I)*COSPHI(I)
                   CXN(I+7) = COSTHA(I)*SINPHI(I)
                   CXN(I+2) = COSPSI(I)*SINTHA(I)*COSPHI(I) + SINPSI(I)*SINPHI(I)
                   CXN(I+5) = SINPSI(I)*SINTHA(I)*COSPHI(I) - COSPSI(I)*SINPHI(I)
                   CXN(I+8) = COSTHA(I)*COSPHI(I)

                   CALL SMMPLY(CXX(I),CXN(I),CNX(I),3,0)

                   F1(I) = .5*SQRT(1.0 + CXX(I) + CXX(I+4) + CXX(I+8))
                   F4(I) = 0.25/F1(I)
                   F2(I) = (CXX(I+7) - CXX(I+5))*F4(I)
                   F3(I) = (CXX(I+2) - CXX(I+6))*F4(I)
                   F4(I) = (CXX(I+3) - CXX(I+1))*F4(I)

                   GO TO 1

                   END


       SYMBOLIC REFERENCE MAP (R=2)

 ENTRY POINTS       DEF LINE      REFERENCES
     3   REOM1          1           151        171

 VARIABLES       SN   TYPE             RELOCATION
  1750   A            REAL        ARRAY    FARRAY     REFS       65     35*71       87
  2134   ALPHA        REAL        ARRAY    FARRAY     REFS       71        89      165    DEFINED    166
  2142   ALPHAD       REAL        ARRAY    FARRAY     REFS       71        85   DEFINED       167
  2143   ALPHAL       REAL        ARRAY    FARRAY     REFS       71        89   DEFINED       165
  2033   AYR          REAL        ARRAY    FARRAY     REFS       71        89      167
  2034   AZR          REAL        ARRAY    FARRAY     REFS       71        89      167
  2135   BETA         REAL        ARRAY    FARRAY     REFS       71        89      160       162    DEFINED    161
  2144   BETAD        REAL        ARRAY    FARRAY     REFS       71        89   DEFINED       162
  2145   BETAL        REAL        ARRAY    FARRAY     REFS       71        89      162    DEFINED    160
   165   CNT          REAL                 FARRAY     REFS       67       162
  1753   CNX          REAL        ARRAY    FARRAY     REFS       71        89      135       191
  2137   COSALP       REAL        ARRAY    FARRAY     REFS       71        89   DEFINED       164
  2141   COSBET       REAL        ARRAY    FARRAY     REFS       71        89   DEFINED       159
  2126   COSPHI       REAL        ARRAY    FARRAY     REFS       71        89      184       185      187      188      189
                                                   DEFINED      149       179
  2121   COSPSI       REAL        ARRAY    FARRAY     REFS       71        89      181       184      185      187      188
```

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      SUBROUTINE [illegible]       74/175  OPT=2                      FTN 4.8+538        82/10/22. 15.12.59        PAGE      5

VARIABLES      SN   TYPE              RELOCATION
                                                  DEFINED     147       175
   2123  COSTHA      REAL         ARRAY    F.ARRAY   REFS      71        89       2*144      145       181       182       186
                                                      189   DEFINED     143        144       177
   2134  CXM         REAL         ARRAY    F.ARRAY   REFS      71        89        137     2*139       140     2*141       142
                                                      146       147     148        140       155       191
                                                  DEFINED     181       182        183       184       185       186       187
                                                      188       189
   2073  CXY         REAL         ARRAY    F.ARRAY   REFS      71        89        137       121     3*193     2*195     2*196
                                                    2*197   DEFINED     125        126       127       129       129       130
                                                      131       132     133
    132  DTOR        REAL                  F.ARRAY   REFS      67
   2175  E1          REAL         ARRAY    F.ARRAY   REFS      71        90      2*108       112       114       116       154
                                                  DEFINED     193
    277  E11         REAL                            REFS     125       129        133   DEFINED       108
    333  E12         REAL                            REFS   2*113       130        132   DEFINED       112       113
    334  E13         REAL                            REFS   2*115       127        131   DEFINED       114       115
    335  E14         REAL                            REFS   2*117       126        128   DEFINED       116       117
   2176  E2          REAL         ARRAY    F.ARRAY   REFS      71        89      2*109       112       118       120
                                                  DEFINED     195
    333  E22         REAL                            REFS     125       129        133   DEFINED       109
    336  E23         REAL                            REFS   2*119       126        129   DEFINED       118       119
    337  E24         REAL                            REFS   2*121       127        131   DEFINED       120       121
   2177  E3          REAL         ARRAY    F.ARRAY   REFS      71        89      2*110       114       118       122
                                                  DEFINED     196
    301  E33         REAL                            REFS     125       129        133   DEFINED       110
    310  E34         REAL                            REFS   2*123       130        132   DEFINED       122       123
   2200  E4          REAL         ARRAY    F.ARRAY   REFS      71        89      2*111       116       120       122       155
                                                      156       197   DEFINED      194       137
    302  E44         REAL                            REFS     125       120        133   DEFINED       111
      0  F           REAL         ARRAY    F.ARRAY   REFS      61        65       5*67
    276  I           INTEGER                         REFS   2*106     2*109      2*110     2*111     2*112     2*114     2*116
                                                    2*118     2*120     2*122        125       126       127       128       120
                                                      130       131       132        133       135     2*137     3*139     2*140
                                                    3*141     2*142     3*143      3*144       145     2*146     2*147     2*148
                                                    2*149       151     3*155      4*157     3*158     2*156     2*160     3*161
                                                    3*162     2*163     2*164      2*165     3*166    17*167     2*174     2*176
                                                    2*176     2*177     2*178      2*179     3*181     3*182     2*183     6*184
                                                    6*185     3*196     6*187      6*188     3*189     3*191     4*193     2*194
                                                    4*195     4*196     4*197    DEFINED       102
    333  IOCSET      INTEGER               F.ARRAY   REFS      67       106
      0  N           INTEGER               F.P.      REFS     102   DEFINED          1
   2172  P           REAL         ARRAY    F.ARRAY   REFS      71        89        167
   2117  PHI         REAL         ARRAY    F.ARRAY   REFS      71        89        178       179   DEFINED       141
    134  PI          REAL                  F.ARRAY   REFS      67       167
   2115  PSI         REAL         ARRAY    F.ARRAY   REFS      71        89        174       175   DEFINED       139
   2173  Q           REAL         ARRAY    F.ARRAY   REFS      71        89      2*167
   2174  R           REAL         ARRAY    F.ARRAY   REFS      71        89        167
    133  RTOD        REAL                  F.ARRAY   REFS      67       139        140       141       161       166
   2135  SINALP      REAL         ARRAY    F.ARRAY   REFS      71        89    DEFINED       163
   2140  SINBET      REAL         ARRAY    F.ARRAY   REFS      71        89    DEFINED       158
   2124  SINPHI      REAL         ARRAY    F.ARRAY   REFS      71        89        184       185       186       187       188
                                                  DEFINED     148       178
   2120  SINPSI      REAL         ARRAY    F.ARRAY   REFS      71        80        182       184       185       187       188
                                                  DEFINED     146       174
   2122  SINTHA      REAL         ARRAY    F.ARRAY   REFS      71        89      2*143       193       164       185       187
                                                      188   DEFINED     142        176
    312  TEMP        REAL         ARRAY              REFS      89       135        137       146       147       148       149
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     SUBROUTINE ZEOM1        74/175  OPT=2                         FTN 4.6+538        82/10/22. 15.12.58        PAGE     6

VARIABLES     SN  TYPE              RELOCATION
                                                    DEFINED      145
  2116  THA        REAL        ARRAY     EARRAY       REFS        71      36      176      177   DEFINED      140
  2131  U          REAL        ARRAY     EARRAY       REFS        71      80      155    4*157      158        161      163
                                                       164     2*166  10*167
   311  VMOS4      REAL                               REFS       159     163      164  DEFINED      157
  2002  VN         REAL        ARRAY     EARRAY       REFS        71      80      155
  2005  VT         REAL        ARRAY     EARRAY       REFS        71      80      151
  2023  VTT        REAL        ARRAY     EARRAY       REFS        71      80      158      150      161

EXTERNALS            TYPE    ARGS          REFERENCES
        ASIN         REAL    1 LIBRARY        140        161
        ATAN2        REAL    2 LIBRARY        139        141       166
        COSD         REAL    1 LIBRARY        175        177       170
        EMMPLY               5                137        155       191
        EMTSAN               2                136
        SIND         REAL    1 LIBRARY        174        176       178
        SQRT         REAL    1 LIBRARY        143        157       193

INLINE FUNCTIONS     TYPE    ARGS          DEF LINE   REFERENCES
        ABS          REAL    1  INTRIN                   144
        SIGN         REAL    2  INTRIN                   144

STATEMENT LABELS                DEF LINE   REFERENCES
   111  1                         153        199
   157  2                         173        106

COMMON BLOCKS   LENGTH
        EARRAY     2000

STATISTICS
  PROGRAM LENGTH                  3239       211
  CM LABELED COMMON LENGTH       37209      2000
       160000B CM USED
```

```
      SUBROUTINE REOM2(N)                                               EOM      595
***                                                                     EOM      596
*  THIS SUBROUTINE IS PART 2 OF THE ROTATIONAL EQUATIONS OF MOTION.     EOM      597
*                                                                       EOM      598
*  THE CALL ARGUMENT IS (N)                                             EOM      599
*  N        AIRCRAFT NUMBER (1,2,3,...,M WHERE M IS THE TOTAL NUMBER OF EOM      600
*           AIRCRAFT).                                                  EOM      601
*                                                                       EOM      602
*                                                                       EOM      603
* F-ARRAY INPUT DEFINITIONS                                             EOM      604
*                                                                       EOM      605
* A1        EOM INTEGRATION CONSTANT OF PRESENT VALUE                   EOM      606
* A2        EOM INTEGRATION CONSTANT OF FIRST PAST VALUE                EOM      607
* A3        EOM INTEGRATION CONSTANT OF SECOND PAST VALUE               EOM      608
* CDT       CURRENT UPDATE TIME INCREMENT IN SECONDS                    EOM      609
* INHB      INHIBIT REOM INTEGRATIONS                                   EOM      610
* IRESET    RESET FLAG                                                  EOM      611
*                                                                       EOM      612
* A-ARRAY INPUT DEFINITIONS                                             EOM      613
*                                                                       EOM      614
* ICON      AIRCRAFT N INERTIA CONSTANTS REQUIRED BY STANDARD EOM       EOM      615
* AIROL     AIRCRAFT N AERODYNAMIC MOMENT BODY COMPONENTS IN FOOT-POUNDS EOM     616
* THL       AIRCRAFT N THRUST MOMENT BODY COMPONENTS IN FOOT-POUNDS     EOM      617
* GCL       AIRCRAFT N GEAR/GUN MOMENT BODY COMPONENTS IN FOOT-POUNDS   EOM      618
*                                                                       EOM      619
* A-ARRAY OUTPUT DEFINITIONS                                            EOM      620
*                                                                       EOM      621
* MX        AIRCRAFT N TOTAL X-BODY MOMENT IN FOOT-POUNDS               EOM      622
* MY        AIRCRAFT N TOTAL Y-BODY MOMENT IN FOOT-POUNDS               EOM      623
* MZ        AIRCRAFT N TOTAL Z-BODY MOMENT IN FOOT-POUNDS               EOM      624
* PD        AIRCRAFT N ANGULAR ACCELERATION X-BODY COMPONENT IN         EOM      625
*           RADIANS/SECOND**2                                           EOM      626
* QD        AIRCRAFT N ANGULAR ACCELERATION Y-BODY COMPONENT IN         EOM      627
*           RADIANS/SECOND**2                                           EOM      628
* RD        AIRCRAFT N ANGULAR ACCELERATION Z-BODY COMPONENT IN         EOM      629
*           RADIANS/SECOND**2                                           EOM      630
* E1D       AIRCRAFT N FIRST QUATERNION RATE                            EOM      631
* E2D       AIRCRAFT N SECOND QUATERNION RATE                           EOM      632
* E3D       AIRCRAFT N THIRD QUATERNION RATE                            EOM      633
* E4D       AIRCRAFT N FOURTH QUATERNION RATE                           EOM      634
* P         AIRCRAFT N ANGULAR VELOCITY X-BODY COMPONENT IN RADIANS/SECONDEOM    635
* Q         AIRCRAFT N ANGULAR VELOCITY Y-BODY COMPONENT IN RADIANS/SECONDEOM    636
* R         AIRCRAFT N ANGULAR VELOCITY Z-BODY COMPONENT IN RADIANS/SECONDEOM    637
* E1        AIRCRAFT N FIRST QUATERNION VALUE                           EOM      638
* E2        AIRCRAFT N SECOND QUATERNION VALUE                          EOM      639
* E3        AIRCRAFT N THIRD QUATERNION VALUE                           EOM      640
* E4        AIRCRAFT N FOURTH QUATERNION VALUE                          EOM      641
* PD2       AIRCRAFT N PD/QD/RD SECOND PAST VALUE COMPONENTS IN         EOM      642
*           RADIANS/SECOND**2                                           EOM      643
* PD1       AIRCRAFT N PD/QD/RD FIRST PAST VALUE COMPONENTS IN          EOM      644
*           RADIANS/SECOND**2                                           EOM      645
* E1D2      AIRCRAFT N E1D SECOND PAST VALUE                            EOM      646
* E2D2      AIRCRAFT N E2D SECOND PAST VALUE                            EOM      647
* E3D2      AIRCRAFT N E3D SECOND PAST VALUE                            EOM      648
* E4D2      AIRCRAFT N E4D SECOND PAST VALUE                            EOM      649
* E1D1      AIRCRAFT N E1D FIRST PAST VALUE                             EOM      650
* E2D1      AIRCRAFT N E2D FIRST PAST VALUE                             EOM      651
```

```
* F30I     AIRCRAFT N F30 FIRST PAST VALUE
* F40I     AIRCRAFT N F40 FIRST PAST VALUE
* DELTA    SUMMATION OF AIRCRAFT N SQUARED QUATERNION VALUES
* KDELTA   AIRCRAFT N QUATERNION CORRECTION FACTOR
***
*
* TYPE STATEMENT(S)
*
      REAL ICON
      REAL MX, MY, MZ, KDELTA
*
* COMMON STATEMENT(S)
*
      COMMON / FARRAY / F(1000)
*
* EQUIVALENCE STATEMENT(S)
*
      EQUIVALENCE (A,F(1001))

      EQUIVALENCE
     .(A1      ,F(109)),(A2      ,F(110)),(A3      ,F(111)),
     .(CIT     ,F(119)),(INHR    ,F(137)),(IRESET  ,F(155))

      EQUIVALENCE
     .(MX      ,A(137)),(MY      ,A(138)),(MZ      ,A(139)),
     .(PD      ,A(140)),(QD      ,A(141)),(RD      ,A(142)),
     .(F10     ,A(143)),(F20     ,A(144)),(F30     ,A(145)),
     .(F40     ,A(146)),(P       ,A(147)),(Q       ,A(148)),
     .(R       ,A(149)),(F1      ,A(150)),(F2      ,A(151)),
     .(F3      ,A(152)),(F4      ,A(153)),(PD2     ,A(154)),
     .(PD1     ,A(157)),(F10?    ,A(160)),(F20?    ,A(161)),
     .(F30?    ,A(162)),(F40?    ,A(163)),(F10I    ,A(164)),
     .(F20I    ,A(165)),(F30I    ,A(166)),(F40I    ,A(167)),
     .(DELTA   ,A(169)),(KDELTA  ,A(165)),(ICON    ,A(260)),
     .(AERO?   ,A(329)),(THL     ,A(754)),(GGL     ,A(979))
*
* DIMENSION STATEMENT(S)
*
      DIMENSION A(1000)

      DIMENSION
     .MX(1)      ,MY(1)      ,MZ(1)      ,PD(1)      ,QD(1)      ,
     .RD(1)      ,F10(1)     ,F20(1)     ,F30(1)     ,F40(1)     ,
     .P(1)       ,Q(1)       ,R(1)       ,F1(1)      ,F2(1)      ,
     .F3(1)      ,F4(1)      ,PD2(1)     ,PD1(1)     ,F10?(1)    ,
     .F20?(1)    ,F30?(1)    ,F40?(1)    ,F10I(1)    ,F20I(1)    ,
     .F30I(1)    ,F40I(1)    ,DELTA(1)   ,KDELTA(1)  ,ICON(1)    ,
     .AERO?(1)   ,THL(1)     ,GGL(1)
*
* COMPUTE AIRCRAFT INDICES
*
      I  = N*1000 -999
      I2 = I+2
      I3 = I2 + 1
*
```

SUBROUTINE RFOM2   74/175   OPT=2   FTN 4.8+538   82/10/22. 15.12.58   PAGE 3

```
      * CHECK RESET AND INITIATE ROTATIONAL FEM FLAGS
      *
            DTI = DOT
            IF((IRESET.NE.0).OR.(INUR.NE.0)) DTI = 0.0
            A1DT = A1*DTI
            A2DT = A2*DTI
            A3DT = A3*DTI
            DO 1 JJ=I,I2
            MX(JJ) = AEROL(JJ) + THL(JJ) + CGL(JJ)
            PD2(JJ) = PD1(JJ)
            PD1(JJ) = PD(JJ)
            F1D2(JJ) = F1D1(JJ)
          1 F1D1(JJ) = F1D(JJ)
            F4D2(I) = F4D1(I)
            F4D1(I) = F4D(I)
            PD(I) = ICON(I)*MX(I) + ICON(I+1)*MZ(I)
           +   + Q(I)*(ICON(I+2)*P(I) + ICON(I+3)*R(I))
           .QD(I) = ICON(I+4)*MY(I) + ICON(I+5)*P(I)*R(I)
           +   + ICON(I+6)*(R(I)*R(I) - P(I)*P(I))
           .RD(I) = ICON(I+7)*MZ(I) + ICON(I+8)*P(I)*Q(I)
           +   + ICON(I+9)*(PD(I) - Q(I)*R(I))
           .
            DO 2 JJ=I,I2
            P(JJ) = P(JJ) + A1DT*PD(JJ) + A2DT*PD1(JJ) + A3DT*PD2(JJ)
          2 P(JJ) = AMIN1(AMAX1(-7.0,P(JJ)),7.0)
            F1D(I) = 0.5*(-P(I)*F2(I) - Q(I)*F3(I) - R(I)*F4(I))
            F2D(I) = 0.5*( P(I)*F1(I) - Q(I)*F4(I) + R(I)*F3(I))
            F3D(I) = 0.5*( P(I)*F4(I) + Q(I)*F1(I) - R(I)*F2(I))
            F4D(I) = 0.5*(-P(I)*F3(I) + Q(I)*F2(I) + R(I)*F1(I))
            DO 4 JJ=I,I2
          4 F1(JJ) = F1(JJ) + A1DT*F1D(JJ) + A2DT*F1D1(JJ) + A3DT*F1D2(JJ)
            F4(I) = F4(I) + A1DT*F4D(I) + A2DT*F4D1(I) + A3DT*F4D2(I)
            DELTA(I) = F1(I)*F1(I) + F2(I)*F2(I) + F3(I)*F3(I) + F4(I)*F4(I)
            DELTA(I) = AMIN1(AMAX1(0.75,DELTA(I)),1.25)
            KDELTA(I) = 0.5 + 0.5/DELTA(I)
            DO 3 JJ=I,I3
          3 F1(JJ) = KDELTA(I)*F1(JJ)
            RETURN
            END
```

SYMBOLIC REFERENCE MAP (R=3)

ENTRY POINTS   DEF LINE   REFERENCES
3 RFOM2   1   160

```
      SUBROUTINE RFDM2          74/175   OPT=2                       FTN 4.8+538        82/10/22. 15.12.58        PAGE     4

VARIABLES      SN   TYPE               RELOCATION
  1750   A          REAL          ARRAY      F.P.        SETS        76      33*62      97
  2463   AERO1      REAL          ARRAY      F.P.        REFS        82      99        125
   154   A1         REAL                     F.P.        REFS        78     120
   230   A1DT       REAL                                 REFS       141     150       151     DEFINED       120
   155   A2         REAL                     F.P.        REFS        78     121
   201   A2DT       REAL                                 REFS       141     150       151     DEFINED       121
   156   A3         REAL                     F.P.        REFS        78     122
   232   A3DT       REAL                                 REFS       141     150       151     DEFINED       122
   166   COT        REAL                     F.P.        REFS        78     117
  2217   DELTA      REAL          ARRAY      F.P.        REFS        82      99       154         155     DEFINED      153        154
   177   DT1        REAL                                 REFS       120     121       122     DEFINED       117        118
  2175   F1         REAL          ARRAY      F.P.        REFS        82      99       145         146       147        150      2*153
                                                          158    DEFINED    150       159
  2166   F10        REAL          ARRAY      F.P.        REFS        82      95       129         150     DEFINED      144
  2213   F101       REAL          ARRAY      F.P.        REFS        82      99       128         150     DEFINED      129
  2217   F102       REAL          ARRAY      F.P.        REFS        82      99       150     DEFINED       128
  2176   F2         REAL          ARRAY      F.P.        REFS        82      99       144         146       147      2*153
  2167   F20        REAL          ARRAY      F.P.        REFS        82      99     DEFINED       145
  2214   F201       REAL          ARRAY      F.P.        REFS        82      99
  2210   F202       REAL          ARRAY      F.P.        REFS        82      99
  2177   F3         REAL          ARRAY      F.P.        REFS        82      99       144         145       147      2*153
  2170   F30        REAL          ARRAY      F.P.        REFS        82      99     DEFINED       146
  2215   F301       REAL          ARRAY      F.P.        REFS        82      99
  2211   F302       REAL          ARRAY      F.P.        REFS        82      99
  2230   F4         REAL          ARRAY      F.P.        REFS        82      99       144         145       146        151      2*153
                                                      DEFINED       151
  2171   F40        REAL          ARRAY      F.P.        REFS        82      99       131         151     DEFINED      147
  2216   F401       REAL          ARRAY      F.P.        REFS        82      99       130         151     DEFINED      131
  2212   F402       REAL          ARRAY      F.P.        REFS        82      99       151     DEFINED       130
     0   F          REAL          ARRAY      F.P.        REFS        72      76      6*78
  3526   GG1        REAL          ARRAY      F.P.        REFS        82      90       125
   174   I          INTEGER                              REFS       112     124     2*130       2*131    10*133     11*135     10*137
                                                          140     7*144   7*145     7*146       7*147       149      6*151      6*153
                                                        2*154     2*155     157       158     DEFINED       111
  2353   ICON       REAL          ARRAY      F.P.        REFS        67      82        99       4*133     3*135      3*137
   210   INUR       INTEGER                  F.P.        REFS        78     118
   232   IRESET     INTEGER                  F.P.        REFS        78     118
   175   I2         INTEGER                              REFS       113     124       140         149     DEFINED      112
   176   I3         INTEGER                              REFS       157   DEFINED     113
   203   II         INTEGER                              REFS     4*125   2*126     2*127       2*128     2*129      5*141      2*142
                                                        5*150     2*158   DEFINED     124         140       149        157
  2220   KDELTA     REAL          ARRAY      F.P.        REFS        68      82        99         158     DEFINED      155
  2160   MX         REAL          ARRAY      F.P.        REFS        68      82        99         133     DEFINED      126
  2161   MY         REAL          ARRAY      F.P.        REFS        68      82        99         135
  2162   MZ         REAL          ARRAY      F.P.        REFS        68      82        99         133       137
     0   N          INTEGER                  F.P.        REFS       111   DEFINED       1
  2172   P          REAL          ARRAY      F.P.        REFS        82      99       133       3*135       137        141        142
                                                          144       145     146       147     DEFINED       141        143
  2163   PP         REAL          ARRAY      F.P.        REFS        82      99       127         137       141
                                                      DEFINED       133
  2204   PP1        REAL          ARRAY      F.P.        REFS        82      99       126         141     DEFINED      127
  2201   PP2        REAL          ARRAY      F.P.        REFS        82      99       141     DEFINED       126
  2173   Q          REAL          ARRAY      F.P.        REFS        82      90       133       2*137       144        145        146
                                                          147
  2154   QQ         REAL          ARRAY      F.P.        REFS        82      90     DEFINED       135
  2174   R          REAL          ARRAY      F.P.        REFS        82      99       133       3*135       137        144        145
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      SUBROUTINE RECM2        74/175  OPT=2                          FTN 4.8+538      82/10/22. 15.12.58      PAGE     6

VARIABLES      SN   TYPE            RELOCATION
                                                       146          147
  2165   GR          REAL         ARRAY     FARRAY     REFS          82        99     DEFINED       137
  3331   THL         REAL         ARRAY     FARRAY     REFS          82        99         125

INLINE FUNCTIONS    TYPE     ARGS            DEF LINE   REFERENCES
         AMAX1       REAL      0   INTRIN                   142          154
         AMIN1       REAL      0   INTRIN         *         142          154

STATEMENT LABELS                    DEF LINE    REFERENCES
     0   1                            123         124
     0   2                            142         140
     0   3                            158         157
     0   4                            153         149

LOOPS    LABEL       INDEX        FROM-TO       LENGTH      PROPERTIES
    30   1           JJ           124 127          10B       INSTACK
    74   2           JJ           140 142          10B       INSTACK
   133   4           JJ           149 150           6B       INSTACK
   154   3           JJ           157 158           2B       INSTACK

COMMON BLOCKS    LENGTH
         FARRAY       2000

STATISTICS
  PROGRAM LENGTH                     204B      132
  CM LABELED COMMON LENGTH          3720B     2000
         160000B CM USED
```

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      74/175  OPT=2                                    FTN 4.8+534       82/10/22. 15.13.06        PAGE     1

      SUBROUTINE STNDAY


***
*  U.S. STANDARD ATMOSPHERE,1962 -- PREPARED UNDER SPONSORSHIP OF:
*    ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
*    NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
*    UNITED STATES AIR FORCE
*
*  1962 STANDARD ATMOSPHERE (45N,SPRING/FALL) - SEA LEVEL TO 100000 FEET
*
*     DATA (GEOMETRIC ALTITUDE POINTS(I),I=1,51)/
*    A         0.00,
*    B      1000.00,  2000.00,  3000.00,  4000.00,  5000.00,
*    C      6000.00,  7000.00,  8000.00,  9000.00, 10000.00,
*    D     11000.00, 12000.00, 13000.00, 14000.00, 15000.00,
*    E     16000.00, 17000.00, 18000.00, 19000.00, 20000.00,
*    F     21000.00, 22000.00, 23000.00, 24000.00, 25000.00,
*    G     26000.00, 27000.00, 28000.00, 29000.00, 30000.00,
*    H     31000.00, 32000.00, 33000.00, 34000.00, 35000.00,
*    I     36000.00, 37000.00, 38000.00, 39000.00, 40000.00,
*    J     41000.00, 42000.00, 43000.00, 44000.00, 45000.00,
*    K     46000.00, 47000.00, 48000.00, 49000.00, 50000.00/
*     DATA (GEOMETRIC ALTITUDE POINTS(I),I=52,101)/
*    L     51000.00, 52000.00, 53000.00, 54000.00, 55000.00,
*    M     56000.00, 57000.00, 58000.00, 59000.00, 60000.00,
*    N     61000.00, 62000.00, 63000.00, 64000.00, 65000.00,
*    O     66000.00, 67000.00, 68000.00, 69000.00, 70000.00,
*    P     71000.00, 72000.00, 73000.00, 74000.00, 75000.00,
*    Q     76000.00, 77000.00, 78000.00, 79000.00, 80000.00,
*    R     81000.00, 82000.00, 83000.00, 84000.00, 85000.00,
*    S     86000.00, 87000.00, 88000.00, 89000.00, 90000.00,
*    T     91000.00, 92000.00, 93000.00, 94000.00, 95000.00,
*    U     96000.00, 97000.00, 98000.00, 99000.00,100000.00/
***

*
* COMMON STATEMENT(S)
*
      COMMON / ATMDATA / NH, BH(2), ATMPTS(101), VSPTS(101)
*
* DATA STATEMENT(S)
*

*  NUMBER OF POINTS PER TABLE - NH

      DATA NH /101/

*  LOWER AND UPPER BOUNDS OF TABLE POINTS - BH

      DATA BH /0.0,100000.0/

*  SQUARE ROOT OF (AIR DENSITY/2.0) TABLE - ATMPTS

      DATA (ATMPTS(I),I=1,51)/
     A     0.0344740,
```

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SUBROUTINE STNDAY      74/175   OPT=2                    FTN 4.8+538        82/10/22. 15.13.04        PAGE    2

              B      0.0339720,0.0334730,0.0329790,0.0324880,0.0320010,
              C      0.0315190,0.0310400,0.0305650,0.0300940,0.0296270,
              D      0.0291640,0.0287050,0.0282500,0.0277980,0.0273510,
              E      0.0269080,0.0264690,0.0260320,0.0256000,0.0251720,
              F      0.0247480,0.0243280,0.0239110,0.0234980,0.0230900,
              G      0.0226850,0.0222830,0.0218860,0.0214930,0.0211030,
              H      0.0207170,0.0203350,0.0199570,0.0195830,0.0192120,
              I      0.0188450,0.0184120,0.0179760,0.0175510,0.0171360,
              J      0.0167310,0.0163350,0.0159480,0.0155710,0.0152030,
              K      0.0148440,0.0144930,0.0141500,0.0138160,0.0134890/
               DATA  (ATMPTS(I),I=52,101)/
              L      0.0131710,0.0128590,0.0125560,0.0122590,0.0119690,
              M      0.0116860,0.0114100,0.0111410,0.0108780,0.0106210,
              N      0.0103700,0.0101250,0.0098864,0.0096531,0.0094253,
              O      0.0092018,0.0089796,0.0087610,0.0085492,0.0083427,
              P      0.0081415,0.0079455,0.0077545,0.0075683,0.0073869,
              Q      0.0072100,0.0070377,0.0068697,0.0067059,0.0065463,
              R      0.0063908,0.0062392,0.0060913,0.0059471,0.0058066,
              S      0.0056697,0.0055360,0.0054058,0.0052788,0.0051550,
              T      0.0050342,0.0049165,0.0048017,0.0046897,0.0045804,
              U      0.0044738,0.0043699,0.0042696,0.0041697,0.0040732/
       *  SPEED OF SOUND IN AIR TABLE - VSPTS
               DATA (VSPTS(I),I=1,51)/
              A         1116.45,
              B         1112.61,   1108.75,   1104.88,   1100.99,   1097.10,
              C         1093.19,   1089.26,   1085.32,   1081.37,   1077.40,
              D         1073.42,   1069.43,   1065.42,   1061.39,   1057.36,
              E         1053.30,   1049.23,   1045.15,   1041.05,   1036.93,
              F         1032.80,   1028.65,   1024.48,   1020.30,   1016.10,
              G         1011.89,   1007.65,   1003.40,    999.14,    994.85,
              H          990.55,    986.22,    981.88,    977.52,    973.14,
              I          968.74,    968.08,    968.08,    968.08,    968.08,
              J          968.08,    968.08,    968.08,    968.08,    968.08,
              K          968.08,    968.08,    968.08,    968.08,    968.08/
               DATA (VSPTS(I),I=52,101)/
              L          968.08,    968.08,    968.08,    968.08,    968.08,
              M          968.08,    968.08,    968.08,    968.08,    968.08,
              N          968.08,    968.08,    968.08,    968.08,    968.08,
              O          968.19,    968.87,    969.55,    970.22,    970.90,
              P          971.57,    972.24,    972.92,    973.59,    974.26,
              Q          974.93,    975.61,    976.28,    976.95,    977.62,
              R          978.28,    978.95,    979.62,    980.29,    980.95,
              S          981.62,    982.29,    982.95,    983.62,    984.28,
              T          984.94,    985.61,    986.27,    986.93,    987.59,
              U          988.26,    988.92,    989.58,    990.24,    990.90/
               RETURN
               END

SYMBOLIC REFERENCE MAP (R=1)
```

```
      SUBROUTINE STNDAY       74/175  OPT=2                          FTN 4.8+531      82/10/22. 15.13.04       PAGE     3

 ENTRY POINTS
     1  STNDAY

 VARIABLES     SN   TYPE             RELOCATION
     3  ATMPTS      REAL         ARRAY  ATMDATA          1  BH        REAL        ARRAY    ATMDATA
     0  NM          INTEGER             ATMDATA        150  VSPTS     REAL        ARRAY    ATMDATA

 COMMON BLOCKS   LENGTH
     ATMDATA       205

 STATISTICS
   PROGRAM LENGTH                   3B        3
   CM LABELED COMMON LENGTH       315B      205
        60000B CM USED
```

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          74/175  OPT=2                               FTN 4.8+538        82/10/22. 15.13.04      PAGE     1

      SUBROUTINE ATMOS(I)                                                ATMOS      108
                                                                         ATMOS      109
***                                                                      ATMOS      110
*  THIS SUBROUTINE CALCULATES THE FOLLOWING PARAMETERS AS A FUNCTION OF  ATMOS      111
*  ALTITUDE FOR A STANDARD ATMOSPHERE:                                   ATMOS      112
*     ATM       A(176)  SQUARE ROOT OF ONE HALF THE ATMOSPHERIC          ATMOS      113
*                       DENSITY                                          ATMOS      114
*     VS        A(177)  LOCAL SPEED OF SOUND IN FEET/SECOND              ATMOS      115
*     RHO       A(178)  ATMOSPHERIC DENSITY IN SLUGS/FOOT**3             ATMOS      116
*     PRESHPF   A(179)  ATMOSPHERIC STATIC PRESSURE IN                   ATMOS      117
*                       POUNDS/FOOT**2                                   ATMOS      118
*     TEMPHR    A(180)  ATMOSPHERIC TEMPERATURE IN DEGREES RANKINE       ATMOS      119
*     PRESHPI   A(181)  ATMOSPHERIC STATIC PRESSURE IN                   ATMOS      120
*                       POUNDS/INCH**2                                   ATMOS      121
*     TEMPHF    A(182)  ATMOSPHERIC TEMPERATURE IN DEGREES               ATMOS      122
*                       FAHRENHEIT                                       ATMOS      123
*                                                                        ATMOS      124
*  THIS SUBROUTINE REQUIRES THAT THE 1962 STANDARD ATMOSPHERE (45N,      ATMOS      125
*  SPRING/FALL) DATA BANK DEFINED IN SUBROUTINE STNDAY BE LOADED.        ATMOS      126
*                                                                        ATMOS      127
*  THE CALL ARGUMENT IS (I):                                             ATMOS      128
*  I        REFERENCE POINT IN THE F ARRAY 1000 LOCATIONS AHEAD OF THE   ATMOS      129
*           A-ARRAY FOR AIRCRAFT NUMBER N. (I = N*1000 - 999)            ATMOS      130
*                                                                        ATMOS      131
*                                                                        ATMOS      132
* A-ARRAY INPUT DEFINITIONS                                              ATMOS      133
*                                                                        ATMOS      134
* H         AIRCRAFT N ALTITUDE IN FEET                                  ATMOS      135
*                                                                        ATMOS      136
* A-ARRAY OUTPUT DEFINITIONS                                             ATMOS      137
*                                                                        ATMOS      138
* ATM       AIRCRAFT N SQUARE ROOT OF ONE HALF THE DENSITY OF THE        ATMOS      139
*           ATMOSPHERE                                                   ATMOS      140
* VS        AIRCRAFT N LOCAL SPEED OF SOUND IN FEET/SECOND               ATMOS      141
* RHO       AIRCRAFT N DENSITY OF THE ATMOSPHERE IN SLUGS/FOOT**3        ATMOS      142
* PRESHPF   AIRCRAFT N STATIC PRESSURE OF THE ATMOSPHERE IN POUNDS/FOOT**2ATMOS     143
* TEMPHR    AIRCRAFT N TEMPERATURE OF THE ATMOSPHERE IN DEGREES RANKINE  ATMOS      144
* PRESHPI   AIRCRAFT N STATIC PRESSURE OF THE ATMOSPHERE IN POUNDS/INCH**2ATMOS     145
* TEMPHF    AIRCRAFT N TEMPERATURE OF THE ATMOSPHERE IN DEGREES FAHRENHEITATMOS     146
***                                                                      ATMOS      147
                                                                         ATMOS      148
*                                                                        ATMOS      149
* COMMON STATEMENT(S)                                                    ATMOS      150
*                                                                        ATMOS      151
      COMMON / FARRAY / F(1001)                                          ATMOS      152
                                                                         ATMOS      153
      COMMON / ATMDATA / NH, BH(2), ATMPTS(1)                            ATMOS      154
*                                                                        ATMOS      155
* EQUIVALENCE STATEMENT(S)                                               ATMOS      156
*                                                                        ATMOS      157
      EQUIVALENCE (A,F(1001))                                            ATMOS      158
                                                                         ATMOS      159
      EQUIVALENCE                                                        ATMOS      160
     .(H       ,A(  1)),(ATM     ,A(176)),(VS      ,A(177)),             ATMOS      161
     .(RHO     ,A(178)),(PRESHPF,A(179)),(TEMPHR  ,A(180)),              ATMOS      162
     .(PRESHPI,A(181)),(TEMPHF  ,A(182)),(INSTD   ,A(195)),              ATMOS      163
     .(ICASE   ,A(959))                                                  ATMOS      164
```

```
SUBROUTINE ATMOS       74/175  OPT=2                      FTN 4.8+538       82/10/22. 15.13.04        PAGE     2

         *
         * DIMENSION STATEMENT(S)
         *
               DIMENSION A(1000)

               DIMENSION
              .H(1)          ,ATM(1)         ,VS(1)          ,RHO(1)         ,PRESHPF(1) ,
              .TEMPHR(1)     ,PRESHPI(1)     ,TEMPHF(1)

         *  BYPASS STANDARD DAY ATMOSPHERE DEFINITIONS IF NON-STANDARD
         *  INPUTS HAVE BEEN SPECIFIED

               IF(INSTD.EQ.1) GO TO 40

               ATM(I) = F1A(H(I),NH,BH,ATMPTS)
               VS(I) = F1B(H(I),NH,BH,ATMPTS(NH+1))

               RHO(I) = 2.0*ATM(I)*ATM(I)

               TEMPHR(I) = 0.0004161141616*VS(I)*VS(I)
               TEMPHF(I) = TEMPHR(I) - 459.67

               PRESHPF(I) = 1716.5619*RHO(I)*TEMPHR(I)
               PRESHPI(I) = 0.006944444*PRESHPF(I)

               GO TO 50

         *  NON-STANDARD DAY INPUTS SHOULD BE SPECIFIED BELOW

            40 CONTINUE
               TEMPHF(I) =-56.74
               TEMPHR(I) = 402.93
               VS(I) = 984.
               PRESHPI(I) = 3.899
               PRESHPF(I) = 561.5
               RHO(I) = .00081
               ATM(I) = .02015


            50 CONTINUE

               RETURN
               END
```

SYMBOLIC REFERENCE MAP (R=1)

ENTRY POINTS
3 ATMOS

VARIABLES		SN	TYPE		RELOCATION					
1750	A		REAL	ARRAY	FARRAY	2227	ATM	REAL	ARRAY	FARRAY
3	ATMPTS		REAL	ARRAY	ATMDATA	1	BH	REAL	ARRAY	ATMDATA
0	F		REAL	ARRAY	FARRAY	1762	H	REAL	ARRAY	FARRAY

```
        SUBROUTINE ATMOS       74/175  OPT=2                          FTN 4.8+538       82/10/22. 15.13.04        PAGE      3

VARIABLES      SN  TYPE              RELOCATION
    0  I           INTEGER                F.P.        3646  ICASE      INTEGER                FARRAY
 2252  INSTD       INTEGER              FARRAY           0  NH         INTEGER                ATMDATA
 2232  PRESHPF     REAL        ARRAY    FARRAY        2234  PRESHPI    REAL        ARRAY      FARRAY
 2231  RHO         REAL        ARRAY    FARRAY        2235  TEMPHF     REAL        ARRAY      FARRAY
 2233  TEMPHR      REAL        ARRAY    FARRAY        2230  VS         REAL        ARRAY      FARRAY

EXTERNALS          TYPE     ARGS
       F1A         REAL      4                              F1B        REAL        4

STATEMENT LABELS
    31  40                            44   50

COMMON BLOCKS    LENGTH
       FARRAY      2000
       ATMDATA        4

STATISTICS
   PROGRAM LENGTH                   74B        60
   CM LABELED COMMON LENGTH       3724B      2004
           60000B CM USED
```

```
      SUBROUTINE RTPDATA
C
C**********************************************************************
C*
C*    THIS SUBROUTINE PROVIDES AN EASY-TO-USE INTERFACE WITH SUBROUTINE
C*    RTP. SUBROUTINE RTPDATA PROVIDES ALL EXCEPT EXECUTIVE PROGRAM
C*    SPECIFIED INPUT DATA REQUIRED BY SUBROUTINE RTP AND CONTAINS ALL
C*    REQUIRED CALLS TO RTP AND ITS ENTRY POINTS. THE PRIMARY PURPOSE OF
C*    RTPDATA IS TO SUPPLY POINTERS FOR DATA TO BE BUFFERED OUT, SO THAT
C*    SUBROUTINE RTP CAN LOCATE THE DATA PARAMETERS WITH RESPECT TO THE
C*    F-ARRAY.
C*
C*    THE LOGIC AND STRUCTURE IN THIS LISTING IS INTENDED AS A GUIDE
C*    AND EXAMPLE TO SHOW HOW ALL THE RTP INPUTS CAN BE SPECIFIED IN A
C*    GENERAL WAY TO PROVIDE FLEXIBILITY.  THE USER MUST DECIDE TO WHAT
C*    EXTENT IT MEETS THE REQUIREMENTS OF HIS STUDY, AND MAY NEED TO
C*    DELETE OR ADD SECTIONS.
C*
C*    THE FOLLOWING VARIABLES ARE INPUTS TO RTP AND ARE COMPUTED OR IN
C*    DATA STATEMENTS IN RTPDATA:
C*
C*                -- REQUIRED --                -- OPTIONAL --
C*
C*                   NU                            TAPELIM
C*                   TAPEDEN                       NPE
C*                   NP                            NPS
C*                   NB                            NPE
C*                   IBUFP                         IBUFN
C*                   DTBUF                         DTFBUF
C*                                                 NAMES
C*                                                 NPA
C*                                                 IBUFA
C*
C*    THE FOLLOWING ARE ITEMS TO CONSIDER:
C*
C*    1.  THE POINTERS ARRAY *IB* MUST CONTAIN, IN SEQUENCE, *NP* TIME
C*    HISTORY DATA POINTERS, *NPS* START OF RUN DATA POINTERS, AND *NPE*
C*    END OF RUN DATA POINTERS.  THE LOGIC SHOWN PRODUCES THIS STRUCTURE,
C*    AND ALLOWS FOR EXPANSION WITHIN EACH SECTION BY USE OF THE INDEX
C*    *N* AND COMPUTATION OF *NP*, *NPS*, AND *NPE*.  SINCE START OF RUN
C*    AND END OF RUN DATA IS OPTIONAL, THE RESPECTIVE SECTIONS COULD BE
C*    DELETED, AND *NPS* AND/OR *NPE* WOULD THEN BE ZERO.
C*
C*    2.  THE NAMES ARRAY *IN* PROVIDES FOR THE CAPABILITY OF STORING
C*    VARIABLE NAMES IN THE START OF RUN RECORD FOR AUTOMATIC OFFLINE
C*    PRINTOUT.  IF THIS OPTION IS USED, THE *IN* ARRAY MUST CONTAIN
C*    NAMES IN THE SAME POSITIONS CORRESPONDING TO THE VARIABLE POINTERS
C*    IN THE *IB* ARRAY.  IF THE NAMES OPTION IS NOT USED, THE VARIABLE
C*    *NAMES* MUST BE ZERO, AND ALL REFERENCES TO THE *IN* ARRAY CAN BE
C*    DELETED, WITH THE FOLLOWING EXCEPTION.  ARRAY *IN* SHOULD STILL BE
C*    DIMENSIONED TO AT LEAST ONE AND LOCATED AFTER THE *IB* ARRAY IN
C*    COMMON BLOCK *BUFF1*, AND VARIABLE *INL* SHOULD BE COMPUTED AS SHOWN
C*    SO THE ERROR CHECK CAN STILL BE PERFORMED.
C*
C*    3.  THE DO-LOOPS INVOLVING VARIABLE *IN* ARE USEFUL ONLY IF NAMES
C*    ARE USED AND DATA POINTERS ARE COMPUTED AS SHOWN FOR MULTIPLE
C*    AIRCRAFT.  THEY INSERT AN AIRCRAFT NUMBER OR AN AIRCRAFT PAIR INTO
```

```
* EACH NAME.                                                             RTPDATA    58
*                                                                        RTPDATA    59
* 4.  THE SECTION FOR FAST RATE DATA IS NEEDED ONLY IF THE USER          RTPDATA    60
* DESIRES TO OUTPUT A SUBSET, *NPF*, OF THE TIME HISTORY PARAMETERS,     RTPDATA    61
* *NP*, AT A RATE, *DTFBUF*, FASTER THAN THE BASIC RATE, *DTBUF*.        RTPDATA    62
* IF USED, THESE FAST RATE VARIABLES MUST BE AT THE BEGINNING OF         RTPDATA    63
* THE TIME HISTORY VARIABLES AS SHOWN AND *NPF* IS LESS THAN *NP*.       RTPDATA    64
* IF NOT USED, *DTFBUF* MUST BE ZERO.                                    RTPDATA    65
*                                                                        RTPDATA    66
* 5.  DATA OUTPUT RATES *DTBUF* AND *DTFBUF* CAN BE SET IN DATA          RTPDATA    67
* STATEMENTS AND/OR CAN BE CHANGED IN REAL TIME.                         RTPDATA    68
*                                                                        RTPDATA    69
* THE FOLLOWING ARE EXECUTABLE STATEMENTS IN ENTRY POINT IRTP:           RTPDATA    70
*     IBUF1(1)   = NP            F(58)                                   RTPDATA    71
*     IBUF1(2)   = NB            F(62)                                   RTPDATA    72
*     BUF1(3)    = TITLE(1)      F(41)                                   RTPDATA    73
*     BUF1(4)    = TITLE(2)      F(42)                                   RTPDATA    74
*     BUF1(5)    = TITLE(3)      F(43)                                   RTPDATA    75
*     IBUF1(6)   = JDATE         F(47)                                   RTPDATA    76
*     IBUF1(7)   = ITIME         F(48)                                   RTPDATA    77
*     IBUF1(8)   = NRUN          F(49)                                   RTPDATA    78
*     BUF1(10)   = DTBUF         F(65)                                   RTPDATA    79
*     BUF1(11)   = CLASS(1)      F(44)                                   RTPDATA    80
*     BUF1(12)   = CLASS(2)      F(45)                                   RTPDATA    81
*     BUF1(13)   = CLASS(3)      F(46)                                   RTPDATA    82
*     IBUF1(14)  = 30DEC, 1975                                           RTPDATA    83
*     IBUF1(15)  = IHYBRID       F(126)                                  RTPDATA    84
*     BUF1(16)   = TAPEDEN       F(53)                                   RTPDATA    85
*     IBUF1(17)  = NAMES         F(67)                                   RTPDATA    86
*     IBUF1(18)  = NPS           F(60)                                   RTPDATA    87
*     IBUF1(19)  = NPF           F(61)                                   RTPDATA    88
*     IBUF1(20)  = TSPD                                                  RTPDATA    89
*     IBUF1(21)  = TSPP                                                  RTPDATA    90
*     IBUF1(22)  = TSPN                                                  RTPDATA    91
*     IBUF1(23)  = TTHP                                                  RTPDATA    92
*     IBUF1(24)  = TTHN                                                  RTPDATA    93
*     IBUF1(25)  = NPA           F(68)                                   RTPDATA    94
*     IBUF1(26)  = TSPA                                                  RTPDATA    95
* PARAMETERS 20 THROUGH 24 AND 26 ARE COMPUTED IN RTP.                   RTPDATA    96
*                                                                        RTPDATA    97
* THE FOLLOWING ARE EXECUTABLE STATEMENTS IN ENTRY POINT FRTP:           RTPDATA    98
*     IBUF1(1)   = 10HEND OF RUN                                         RTPDATA    99
*     BUF1(2)    = TIME          F(151)                                  RTPDATA   100
*     IBUF1(3)   = MISS          F(72)                                   RTPDATA   101
*     IBUF1(4)   = ITERM(1)      F(147)                                  RTPDATA   102
*     IBUF1(5)   = ITERM(2)      F(148)                                  RTPDATA   103
*     IBUF1(6)   = IFRD                                                  RTPDATA   104
*     IBUF1(7)   = IFRP                                                  RTPDATA   105
*     IBUF1(8)   = IFRN                                                  RTPDATA   106
* PARAMETERS 6 THROUGH 8 ARE COMPUTED IN RTP.                            RTPDATA   107
*                                                                        RTPDATA   108
*                                                                        RTPDATA   109
* F-ARRAY INPUT DEFINITIONS                                              RTPDATA   110
*                                                                        RTPDATA   111
* ILF     F-ARRAY BASE ADDRESS                                           RTPDATA   112
* NPC     NUMBER OF RTP PARAMETERS OUTPUT ON CURRENT PASS                RTPDATA   113
* TRTPON  RTP ON DURING RUN FLAG                                         RTPDATA   114
```

```
* MISS     CODE FOR NUMBER OF PASSES IN WHICH DATA WAS NOT BUFFERED OUT
*          AND EXCEEDED TAPE LIMIT (-) FLAG
* TIME     SIMULATION RUNNING TIME IN SECONDS
* IRTPBUF  RTP BUFFER OUT FLAG
*
* F-ARRAY OUTPUT DEFINITIONS
*
* NU       RTP OUTPUT TAPE LOGICAL UNIT NUMBER
* TAPEDEN  RTP TAPE DENSITY IN BPI
* TAPELIM  RTP TAPE LIMIT IN FEET
* NP       NUMBER OF RTP PARAMETERS OUTPUT AT THE BASIC RATE
* NPE      NUMBER OF RTP PARAMETERS OUTPUT AT THE FAST RATE
* NPS      NUMBER OF RTP USER SPECIFIED START OF RUN PARAMETERS
* NPF      NUMBER OF RTP USER SPECIFIED END OF RUN PARAMETERS
* NB       BUFFER OUT RECORD SIZE
* IBUFP    F-ARRAY INDEX OF RTP PARAMETERS POINTERS ARRAY
* IBUFN    F-ARRAY INDEX OF RTP PARAMETERS NAMES ARRAY
* DTBUF    BASIC DATA OUTPUT INTERVAL IN SECONDS
* DTFBUF   FAST DATA OUTPUT INTERVAL IN SECONDS
* NAMES    RTP NAMES OPTION FLAG
* IBUFA    F-ARRAY INDEX OF RTP ALPHANUMERIC DATA ARRAY
* IRTPLD   RTP LOAD FLAG
*
************************************************************************
*
* COMMON STATEMENT(S)
*
      COMMON / FARRAY / F(1001)

      COMMON / BUFF1 / BUF1(1500),BUF2(1500),IB(250),IN(250)
*
* EQUIVALENCE STATEMENT(S)
*
* RTP INTERFACE
      EQUIVALENCE
     .(NU      ,F( 52)),(TAPEDEN,F( 53)),(TAPELIM,F( 54)),
     .(NP      ,F( 58)),(NPS    ,F( 60)),(NPE    ,F( 61)),
     .(NB      ,F( 62)),(IBUFP  ,F( 63)),(IBUFN  ,F( 64)),
     .(DTBUF   ,F( 65)),(DTFBUF ,F( 66)),(NAMES  ,F( 67)),
     .                  (IBUFA  ,F( 69)),(NPF    ,F( 70)),
     .(IRTPON  ,F( 71)),(MISS   ,F( 72))
* EXEC/STUDY INTERFACE
      EQUIVALENCE
     .(IIF     ,F( 29)),
     .(TIME    ,F(151)),(IRTPLD ,F(178)),(IRTPBUF,F(179))
      EQUIVALENCE (A,F(1001))
*
* DIMENSION STATEMENT(S)
*
      DIMENSION
     .        A(1000)
```

```
*
* DATA STATEMENT(S)
*
      DATA
     .    NU      /    3   /,
     .    TAPEDEN / 1600.0 /,
     .    TAPELEN / 2000.0 /

      DATA
     .    DTBUF  / 0.1 /,
     .    DTFBUF / 0.0 /

      DATA
     .    NAMES   /    1    /

      DATA
     .    IRTPLO / 1 /

*                                   ********************************
*                                   *
*                                   * TIME HISTORY CALL
*                                   *
*                                   ********************************
*
* RTPDATA CALCULATION

      IF(IRTPBUF .LE. 0) RETURN
*                                   BUFFER RATE CHANGE LOGIC
*                                      BASIC RATE
*                                   REAL TIME RTP CALL
      CALL RTP
      RETURN
*                                   ********************************
*                                   *
*                                   * INITIAL CALL
*                                   *
*                                   ********************************
      ENTRY IRTPDAT
      ILF = LOCF(F(1))
      ILFM1 = ILF - 1
*                                   POINTER ARRAY INDEX
      IBL = LOCF(IB(1))
      IBUFP = IBL - ILFM1
*                                   NAME ARRAY INDEX
      INL = LOCF(IN(1))
      IBUFN = INL - ILFM1
*                                   ZERO OUT POINTERS ARRAY
      IBLEN = INL - IBL
      DO 20 I=1,IBLEN
      IB(I) = 0
```

```
SUBROUTINE RTPDATA     74/175  OPT=2                  FTN 4.9+534       82/10/22. 15.13.10     PAGE    6

   20 CONTINUE                                                                      RTPDATA    229
*                                    ******************************************RTPDATA    230
*                                    *                                          RTPDATA    231
*                                    * TIME HISTORY DATA                        RTPDATA    232
*                                    * POINTERS AND NAMES                       RTPDATA    233
*                                    *                                          RTPDATA    234
*                                    ******************************************RTPDATA    235
      IB(1) = 151                                                                RTPDATA    236
      IB(2) = 70                                                                 RTPDATA    237
      N = 2                                                                      RTPDATA    238
      INA = 1000                                                                 RTPDATA    239
                                                                                 RTPDATA    240
                                                                                 RTPDATA    241
      N=N+1 $ IB(N)=INA + 959 $ IN(N)=10H CASE                                  RTPDATA    242
      N=N+1 $ IB(N)=INA +  40 $ IN(N)=10H MACH                                  RTPDATA    243
      N=N+1 $ IB(N)=INA +  11 $ IN(N)=10H ALT                                   RTPDATA    244
      N=N+1 $ IB(N)=INA +  39 $ IN(N)=10H QBAR                                  RTPDATA    245
      N=N+1 $ IB(N)=INA + 251 $ IN(N)=10H GW                                    RTPDATA    246
      N=N+1 $ IB(N)=INA + 782 $ IN(N)=10H FUEL                                  RTPDATA    247
      N=N+1 $ IB(N)=INA + 819 $ IN(N)=10H WATER                                 RTPDATA    248
      N=N+1 $ IB(N)=INA + 253 $ IN(N)=10H FSCG                                  RTPDATA    249
      N=N+1 $ IB(N)=INA + 255 $ IN(N)=10H WLCG                                  RTPDATA    250
      N=N+1 $ IB(N)=INA + 254 $ IN(N)=10H BLCG                                  RTPDATA    251
      N=N+1 $ IB(N)=INA + 256 $ IN(N)=10H IXX                                   RTPDATA    252
      N=N+1 $ IB(N)=INA + 257 $ IN(N)=10H IYY                                   RTPDATA    253
      N=N+1 $ IB(N)=INA + 258 $ IN(N)=10H IZZ                                   RTPDATA    254
      N=N+1 $ IB(N)=INA + 259 $ IN(N)=10H IXZ                                   RTPDATA    255
      N=N+1 $ IB(N)=INA + 883 $ IN(N)=10H GEAR                                  RTPDATA    256
      N=N+1 $ IB(N)=INA + 639 $ IN(N)=10H LID                                   RTPDATA    257
      N=N+1 $ IB(N)=INA + 117 $ IN(N)=10H ALPHA                                 RTPDATA    258
      N=N+1 $ IB(N)=INA + 118 $ IN(N)=10H BETA                                  RTPDATA    259
      N=N+1 $ IB(N)=INA +  31 $ IN(N)=10H GAMMAV                                RTPDATA    260
      N=N+1 $ IB(N)=INA + 478 $ IN(N)=10H STKLON                                RTPDATA    261
      N=N+1 $ IB(N)=INA + 503 $ IN(N)=10H DH                                    RTPDATA    262
      N=N+1 $ IB(N)=INA + 479 $ IN(N)=10H STKLAT                                RTPDATA    263
      N=N+1 $ IB(N)=INA + 505 $ IN(N)=10H DAL                                   RTPDATA    264
      N=N+1 $ IB(N)=INA + 506 $ IN(N)=10H DAR                                   RTPDATA    265
      N=N+1 $ IB(N)=INA + 637 $ IN(N)=10H DFLAPL                                RTPDATA    266
      N=N+1 $ IB(N)=INA + 638 $ IN(N)=10H DFLAPR                                RTPDATA    267
      N=N+1 $ IB(N)=INA + 480 $ IN(N)=10H PEDAL                                 RTPDATA    268
      N=N+1 $ IB(N)=INA + 513 $ IN(N)=10H DR                                    RTPDATA    269
      N=N+1 $ IB(N)=INA + 788 $ IN(N)=10H THETAJ                                RTPDATA    270
      N=N+1 $ IB(N)=INA + 805 $ IN(N)=10H NFC                                   RTPDATA    271
      N=N+1 $ IB(N)=INA + 804 $ IN(N)=10H NF                                    RTPDATA    272
      N=N+1 $ IB(N)=INA + 825 $ IN(N)=10H INAIR                                 RTPDATA    273
      N=N+1 $ IB(N)=INA + 769 $ IN(N)=10H FGTOT                                 RTPDATA    274
      N=N+1 $ IB(N)=INA + 412 $ IN(N)=10H VE                                    RTPDATA    275
      N=N+1 $ IB(N)=INA + 315 $ IN(N)=10H DRAGSCB                               RTPDATA    276
      N=N+1 $ IB(N)=INA + 750 $ IN(N)=10H DRAGIAL                               RTPDATA    277
      N=N+1 $ IB(N)=INA + 812 $ IN(N)=10H DRAGRAM                               RTPDATA    278
      N=N+1 $ IB(N)=INA + 857 $ IN(N)=10H TOTRLD                                RTPDATA    279
      N=N+1 $ IB(N)=INA + 104 $ IN(N)=10H PHI                                   RTPDATA    280
      N=N+1 $ IB(N)=INA + 103 $ IN(N)=10H THETA                                 RTPDATA    281
      N=N+1 $ IB(N)=INA + 102 $ IN(N)=10H PSI                                   RTPDATA    282
      N=N+1 $ IB(N)=INA + 732 $ IN(N)=10H PDEG                                  RTPDATA    283
      N=N+1 $ IB(N)=INA + 733 $ IN(N)=10H QDEG                                  RTPDATA    284
      N=N+1 $ IB(N)=INA + 734 $ IN(N)=10H RDEG                                  RTPDATA    285
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```
      N=N+1 $ IB(N)=INA +1000 $ IN(N)=10H NZ                          RTPDATA   286
      N=N+1 $ IB(N)=INA +   51 $ IN(N)=10H XACC                       RTPDATA   287
      N=N+1 $ IB(N)=INA +   52 $ IN(N)=10H YACC                       RTPDATA   288
      N=N+1 $ IB(N)=INA +   53 $ IN(N)=10H ZACC                       RTPDATA   289
      N=N+1 $ IB(N)=INA +  943 $ IN(N)=10H PDDEG                      RTPDATA   290
      N=N+1 $ IB(N)=INA +  944 $ IN(N)=10H QDDEG                      RTPDATA   291
      N=N+1 $ IB(N)=INA +  945 $ IN(N)=10H RDDEG                      RTPDATA   292
      N=N+1 $ IB(N)=INA +  973 $ IN(N)=10H XTOT                       RTPDATA   293
      N=N+1 $ IB(N)=INA +  974 $ IN(N)=10H YTOT                       RTPDATA   294
      N=N+1 $ IB(N)=INA +  975 $ IN(N)=10H ZTOT                       RTPDATA   295
      N=N+1 $ IB(N)=INA +  137 $ IN(N)=10H LTOT                       RTPDATA   296
      N=N+1 $ IB(N)=INA +  138 $ IN(N)=10H MTOT                       RTPDATA   297
      N=N+1 $ IB(N)=INA +  139 $ IN(N)=10H NTOT                       RTPDATA   298
      N=N+1 $ IB(N)=INA +  326 $ IN(N)=10H XAERO                      RTPDATA   299
      N=N+1 $ IB(N)=INA +  327 $ IN(N)=10H YAERO                      RTPDATA   300
      N=N+1 $ IB(N)=INA +  328 $ IN(N)=10H ZAERO                      RTPDATA   301
      N=N+1 $ IB(N)=INA +  329 $ IN(N)=10H LAERO                      RTPDATA   302
      N=N+1 $ IB(N)=INA +  330 $ IN(N)=10H MAERO                      RTPDATA   303
      N=N+1 $ IB(N)=INA +  331 $ IN(N)=10H NAERO                      RTPDATA   304
      N=N+1 $ IB(N)=INA +  751 $ IN(N)=10H XFG                        RTPDATA   305
      N=N+1 $ IB(N)=INA +  752 $ IN(N)=10H YFG                        RTPDATA   306
      N=N+1 $ IB(N)=INA +  753 $ IN(N)=10H ZFG                        RTPDATA   307
      N=N+1 $ IB(N)=INA +  754 $ IN(N)=10H LFG                        RTPDATA   308
      N=N+1 $ IB(N)=INA +  755 $ IN(N)=10H MFG                        RTPDATA   309
      N=N+1 $ IB(N)=INA +  756 $ IN(N)=10H NFG                        RTPDATA   310
      N=N+1 $ IB(N)=INA +  651 $ IN(N)=10H XRCS                       RTPDATA   311
      N=N+1 $ IB(N)=INA +  652 $ IN(N)=10H YRCS                       RTPDATA   312
      N=N+1 $ IB(N)=INA +  653 $ IN(N)=10H ZRCS                       RTPDATA   313
      N=N+1 $ IB(N)=INA +  654 $ IN(N)=10H LRCS                       RTPDATA   314
      N=N+1 $ IB(N)=INA +  655 $ IN(N)=10H MRCS                       RTPDATA   315
      N=N+1 $ IB(N)=INA +  656 $ IN(N)=10H NRCS                       RTPDATA   316
*                                                                     RTPDATA   317
*                                  NUMBER OF BASIC RATE VARIABLES     RTPDATA   318
      NP = N                                                          RTPDATA   319
*                                  BUFFER OUT RECORD SIZE             RTPDATA   320
      NB  = 6 * NP                                                    RTPDATA   321
*                                  ERROR CHECK                        RTPDATA   322
                                                                      RTPDATA   323
      ITEMP = LOCF(BUF2(1)) - LOCF(BUF1(1))                           RTPDATA   324
      IF(NB .GT. ITEMP)                                               RTPDATA   325
     .CALL MSG49T(39H *S* RTPDATA - BUF1 DIMENSION TOO SMALL)         RTPDATA   326
                                                                      RTPDATA   327
*                                  ***********************************RTPDATA   328
*                                  *                                  RTPDATA   329
*                                  * START OF RUN DATA                RTPDATA   330
*                                  * POINTERS AND NAMES               RTPDATA   331
*                                  *                                  RTPDATA   332
*                                  ***********************************RTPDATA   333
                                                                      RTPDATA   334
                                                                      RTPDATA   335
                                                                      RTPDATA   336
      N=N+1 $ IB(N)=INA +  182 $ IN(N)=10H TEMPHF                     RTPDATA   337
      N=N+1 $ IB(N)=INA +  251 $ IN(N)=10H GW                         RTPDATA   338
      N=N+1 $ IB(N)=INA +  782 $ IN(N)=10H FUEL                       RTPDATA   339
      N=N+1 $ IB(N)=INA +  819 $ IN(N)=10H WATER                      RTPDATA   340
      N=N+1 $ IB(N)=INA +  253 $ IN(N)=10H FSCG                       RTPDATA   341
      N=N+1 $ IB(N)=INA +  255 $ IN(N)=10H WLCG                       RTPDATA   342
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```
      N=N+1 $ IB(N)=INA + 255 $ IN(N)=10H ALCG
      N=N+1 $ IB(N)=INA + 256 $ IN(N)=10H IXX
      N=N+1 $ IB(N)=INA + 257 $ IN(N)=10H IYY
      N=N+1 $ IB(N)=INA + 258 $ IN(N)=10H IZZ
      N=N+1 $ IB(N)=INA + 259 $ IN(N)=10H IXZ
      N=N+1 $ IB(N)=INA + 883 $ IN(N)=10H GFAR
      N=N+1 $ IB(N)=INA + 639 $ IN(N)=10H LTD



*                                         NUMBER OF START OF RUN VARIABLES
      NPS=N-NP
*                                         ********************************
*                                         *
*                                         * END OF RUN DATA
*                                         * POINTERS AND NAMES
*                                         *
*                                         ********************************

      NPE = 0

*                                         ********************************
*                                         *
*                                         * INITIALIZATION
*                                         *
*                                         ********************************

*                                         ERROR CHECK

      IF(NP+NPS+NPE .LE. IBLEN) GO TO 800
      PRINT 9000, NP, NPS, NPE, IBLEN
 9000 FORMAT(//10X,*NP   =*,I5/
     .             10X,*NPS  =*,I5/
     .             10X,*NPE  =*,I5//
     .             10X,*DIMENSION OF IB =*,I5)
      CALL MSGABT(37H *S* RTPDATA - IB DIMENSION TOO SMALL)
  800 CONTINUE
*                                         INITIAL RTP CALL
      CALL IRTP
      RETURN
*                                         ********************************
*                                         *
*                                         * FINAL CALL
*                                         *
*                                         ********************************
      ENTRY FRTPDAT

      IF(IRTPON .EQ. 0) RETURN
*                                         FINAL RTP CALL
      CALL FRTP
*     CALL CTMUSE(30,IUSED)
      PRINT 9010, MISS
```

```
      SUBROUTINE RTPDATA      74/175   OPT=2                          FTN 4.8+538        82/10/22. 15.13.10        PAGE      8

  400
                9010 FORMAT(/5X, *RTP END - MISS = *, I7)                                     RTPDATA      400
                     RETURN                                                                   RTPDATA      401
                     END                                                                      RTPDATA      402
                                                                                              RTPDATA      403
                                                                                              RTPDATA      404

      SYMBOLIC REFERENCE MAP (R=2)

ENTRY POINTS        DEF LINE       REFERENCES
  407  FRTPDAT         393           395        403
    6  IRTPDAT         214           387
    1  RTPDATA           1           201        208

VARIABLES      SN   TYPE              RELOCATION
 1750  A            REAL       ARRAY     FARRAY      REFS       165         170
    0  BUF1         REAL       ARRAY     BUFF1       REFS       146         324
 2734  BUF2         REAL       ARRAY     BUFF1       REFS       146         324
  100  DTBUF        REAL                 FARRAY      REFS       152     DEFINED       181
  101  DTFBUF       REAL                 FARRAY      REFS       152     DEFINED       181
    0  F            REAL       ARRAY     FARRAY      REFS       143       16*152      4*161       165        216
  574  I            INTEGER                          REFS       228     DEFINED       227
 5670  IB           INTEGER    ARRAY     BUFF1       REFS       146         220     DEFINED       228        236        237        242
                                                                243         244         245         246        247        248        249        250
                                                                251         252         253         254        255        256        257        258
                                                                259         260         261         262        263        264        265        266
                                                                267         268         269         270        271        272        273        274
                                                                275         276         277         278        279        280        281        282
                                                                283         284         285         286        287        288        289        290
                                                                291         292         293         294        295        296        297        298
                                                                299         300         301         302        303        304        305        306
                                                                307         308         309         310        311        312        313        314
                                                                315         316         337         338        339        340        341        342
                                                                343         344         345         346        347        348        349
  571  IBL          INTEGER                          REFS       221         226     DEFINED       220
  573  IBLEN        INTEGER                          REFS       227         373         374     DEFINED       226
  104  IBUFA        INTEGER              FARRAY      REFS       152
   77  IBUFN        INTEGER              FARRAY      REFS       152     DEFINED       224
   76  IBUFP        INTEGER              FARRAY      REFS       152     DEFINED       221
   34  ILF          INTEGER              FARRAY      REFS       161         218     DEFINED       216
  570  ILFM1        INTEGER                          REFS       221         224     DEFINED       218
 6262  IN           INTEGER    ARRAY     BUFF1       REFS       146         223     DEFINED       242        243        244        245
                                                                246         247         248         249        250        251        252        253
                                                                254         255         256         257        258        259        260        261
                                                                262         263         264         265        266        267        268        269
                                                                270         271         272         273        274        275        276        277
                                                                278         279         280         281        282        283        284        285
                                                                286         287         288         289        290        291        292        293
                                                                294         295         296         297        298        299        300        301
                                                                302         303         304         305        306        307        308        309
                                                                310         311         312         313        314        315        316        337
                                                                338         339         340         341        342        343        344        345
                                                                346         347         348         349
  575  INA          INTEGER                          REFS       242         243         244         245        246        247        248
```

```
      SUBROUTINE RTPDATA     74/175  OPT=2                            FTN 4.8+538        82/10/22. 15.13.10        PAGE      9

VARIABLES      SN  TYPE              RELOCATION
                                                  249        250        251        252        253        254        255        256
                                                  257        258        259        260        261        262        263        264
                                                  265        266        267        268        269        270        271        272
                                                  273        274        275        276        277        278        279        280
                                                  281        282        283        284        285        286        287        288
                                                  289        290        291        292        293        294        295        296
                                                  297        298        299        300        301        302        303        304
                                                  305        306        307        308        309        310        311        312
                                                  313        314        315        316        317        338        339        340
                                                  341        342        343        344        345        346        347        348
                                                  349     DEFINED       239
  572  INL          INTEGER                      REFS        224        226     DEFINED       223
  262  IRTPAUF      INTEGER          FARRAY      REFS        161        201
  261  IRTPID       INTEGER          FARRAY      REFS        161     DEFINED       188
  106  IRTPON       INTEGER          FARRAY      REFS        152        395
  577  ITEMP        INTEGER                      REFS        325     DEFINED       324
  107  MISS         INTEGER          FARRAY      REFS        152        399
  575  N            INTEGER                      REFS      3*242      3*243      3*244      3*245      3*246      3*247      3*248
                                                3*249      3*250      3*251      3*252      3*253      3*254      3*255      3*256
                                                3*257      3*258      3*259      3*260      3*261      3*262      3*263      3*264
                                                3*265      3*266      3*267      3*268      3*269      3*270      3*271      3*272
                                                3*273      3*274      3*275      3*276      3*277      3*278      3*279      3*280
                                                3*281      3*282      3*283      3*284      3*285      3*286      3*287      3*288
                                                3*289      3*290      3*291      3*292      3*293      3*294      3*295      3*296
                                                3*297      3*298      3*299      3*300      3*301      3*302      3*303      3*304
                                                3*305      3*306      3*307      3*308      3*309      3*310      3*311      3*312
                                                3*313      3*314      3*315      3*316        317      3*337      3*338      3*339
                                                3*340      3*341      3*342      3*343      3*344      3*345      3*346      3*347
                                                3*348      3*349        355     DEFINED       238        242        243        244
                                                  245        246        247        248        249        250        251        252
                                                  253        254        255        256        257        258        259        260
                                                  261        262        263        264        265        266        267        268
                                                  269        270        271        272        273        274        275        276
                                                  277        278        279        280        281        282        283        284
                                                  285        286        287        288        289        290        291        292
                                                  293        294        295        296        297        298        299        300
                                                  301        302        303        304        305        306        307        308
                                                  309        310        311        312        313        314        315        316
                                                  337        338        339        340        341        342        343        344
                                                  345        346        347        348        349
  102  NAMES        INTEGER          FARRAY      REFS        152     DEFINED       185
   75  NB           INTEGER          FARRAY      REFS        152        325     DEFINED       321
   71  NP           INTEGER          FARRAY      REFS        152        321        355        373        374
                                              DEFINED        319
  105  NPC          INTEGER          FARRAY      REFS        152
   74  NPE          INTEGER          FARRAY      REFS        152        373        374     DEFINED       363
   73  NPS          INTEGER          FARRAY      REFS        152        373        374     DEFINED       366
   63  NU           INTEGER          FARRAY      REFS        152     DEFINED       176
   64  TAPEDEN      REAL             FARRAY      REFS        152     DEFINED       176
   65  TAPELIN      REAL             FARRAY      REFS        152     DEFINED       176
  226  TIME         REAL             FARRAY      REFS        161

FILE NAMES          MODE
       OUTPUT       FMT                WRITES     374        399
```

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      SUBROUTINE RTPDATA     74/175  OPT=2                     FTN 4.8+535        82/10/22. 15.13.10       PAGE    10

EXTERNALS          TYPE    ARGS         REFERENCES
      FRTP                   0              397
      IRTP                   0              385
      MSGABT                 1              325         391
      RTP                    0              206

INLINE FUNCTIONS    TYPE    ARGS          DEF LINE   REFERENCES
      LOCF       INTEGER     1   INTRIN                   216         220         223        2*324

STATEMENT LABELS               DEF LINE     REFERENCES
    0  20                         229           227
  405  800                        383           373
  433  9000     FMT               376           374
  450  9010     FMT               401           399

LOOPS   LABEL     INDEX      FROM-TO      LENGTH      PROPERTIES
   21   20        I           227 229        2B        INSTACK

COMMON BLOCKS     LENGTH
      FARRAY        2000
      BUFF1         3500

STATISTICS
   PROGRAM LENGTH                  612B        394
   CM LABELED COMMON LENGTH      12574B       5500
          60000B CM USED
```

APPENDIX B

YAV-8B NONLINEAR

PROGRAM ARRAY SEARCH

YAV-8B ARRAY SEARCH   SEARCH F ARRAY

1		RTPDATA		
2	----	28		
29		RTPDATA ILF		
30	----	40		
41		CARDS TITLE	RTP TITLE	
42	----	43		
44		RTP CLASS		
45	----	46		
47		YAV8B JDATE	CARDS JDATE	RTP JDATE
48		YAV8B JTIME	CARDS JTIME	RTP JTIME
49		YAV8B NRUN	RTP NRUN	
50	----	51		
52		RTP NU	RTPDATA NU	
53		RTP TAPEDEN	RTPDATA TAPEDEN	
54		RTP TAPELIM	RTPDATA TAPELIM	

YAV-8B ARRAY SEARCH — SEARCH F ARRAY

55	RTP RECL		
56	RTP TAPEL		
57			
58	RTP NP	RTPDATA NP	
59	RTP NPF		
60	RTP NPS	RTPDATA NPS	
61	RTP NPE	RTPDATA NPE	
62	RTP NB	RTPDATA NB	
63	RTP IBUFP	RTPDATA IBUFP	
64	RTP IBUFN	RTPDATA IBUFN	
65	YAV8B DTBUF	RTP DTBUF	RTPDATA DTBUF
66	RTP DTFBUF	RTPDATA DTFBUF	
67	RTP NAMES	RTPDATA NAMES	
68	RTP NPA		

YAV-8B ARRAY SEARCH SEARCH F ARRAY

69		RTP IBUFA	RTPDATA IBUFA				
70		RTP NPC	RTPDATA NPC				
71		RTP IRTPON	RTPDATA IRTPON				
72		RTP MISS	RTPDATA MISS				
73	----	90					
91		YAV8B DTOR	AERDY8B DTOR	ENG08 DTOR	RCS07 D2R	TEOM1 DTOR	REOM1 DTOR
92		YAV8B RTOD	I50MS RTOD	AERDY8B RTOD	PFC07 RTOD	TEOM1 RTOD	REOM1 RTOD
93		YAV8B PI	REOM1 PI				
94	----	99					
100		YAV8B G	I50MS G	ENG08 G	PFC07 G	WTBAL07 G	
101		TEOM1 OMEGAD					
102		TEOM1 OMEGAR					
103		TEOM1 BEARTH					
104		TEOM1 ESQ					
105		TEOM1 GRAV					

YAV-8B ARRAY SEARCH SEARCH F ARRAY

106	----	108								
109		TEOM2 A1	REOM2 A1							
110		TEOM2 A2	REOM2 A2							
111		TEOM2 A3	REOM2 A3							
112	----	117								
118		YAV8B FDT	I50MS FDT	AC07 FDT	RTP FDT					
119		YAV8B CDT	I50MS CDT	ENG08 DELT	AC07 CDT	PEC07 DELTO	SEC07 DT1	TEOM2 CDT	REOM1 CDT	REOM2 CDT
120	----	125								
126		RTP IHYBRED								
127	----	135								
136		TEOM2 INHT								
137		REOM2 INHR								
138	----	145								
146		YAV8B NOCARDS	CARDS NOCARDS							
147		RTP ITERM								

YAV-8B ARRAY SEARCH SEARCH F ARRAY

148	----	149							
150		YAV8B TSTOPD							
151		YAV8B RUNTIME	I50MS TIME	TEOM1 TIME	RTP TIME	RTPDATA TIME			
152									
153		YAV8B INITIAL	I50MS INITIAL	AEROY8B INITIAL	ENG08 INITIAL	AC07 INITIAL	PFC07 INITIAL	SFC07 INITIAL	WTBAL07 INITIAL
154									
155		YAV8B IRESET	ENG08 IRESET	TEOM1 IRESET	TEOM2 IRESET	REOM1 IRESET	REOM2 IRESET		
156		YAV8B NPASS							
157		YAV8B NPASSD							
158	----	177							
178		RTPDATA IRTPLD							
179		YAV8B IRTPBUF	RTP IRTPBUF	RTPDATA IRTPBUF					
180	----	276							
277		YAV8B IAC	AC07 IAC						
278	----	999							
1000		CARDS	RTP						

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      YAV-8B ARRAY SEARCH                              SEARCH F ARRAY

1001          YAV8B     I50MS     I50MS     AEROY8B   AEROY8B   ENG08     AC07      AC07      RCS07     RCS07
              A                   A                   A         A                   A                   A
              PPC07     PFC07     SFC07     SFC07     WTBAL07   WTBAL07   TEOM1     TEOM1     TEOM2     TEOM2
                        A                   A                   A                   A                   A
              REOM1     REOM1     REOM2     REOM2     ATMOS     ATMOS     RTPDATA   RTPDATA
                        A                   A                   A                   A

1002  ----     1999

2000          ENG08

2001  ----     2999

3000          YAV8B
```

YAV-8B ARRAY SEARCH — SEARCH A ARRAY

1	TEOM1 RCOSL			
2	TEOM1 RAC			
3	TEOM1 COSL			
4	TEOM1 SINL			
5	TEOM1 COSLAM			
6	TEOM1 SINLAM			
7	TEOM1 L			
8	TEOM1 LAM			
9	TEOM1 LAMR			
10	TEOM1 RE			
11	AEROY8B H	ENG08 H	TEOM1 H	ATMOS H
12	TEOM1 CNX	REOM1 CNX		
13 ----	20			
21	TEOM1 VIN			

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

```
22  ----     23

24       TEOM1
         VGN

25       TEOM1
         VGE

26       TEOM1
         VGD

27       TEOM1      REOM1
         VN         VN

28       TEOM1
         VE

29       TEOM1
         VD

30       AEROY8B    ENG08      TEOM1      REOM1
         VT         VT         VT         VT

31       I50MS      TEOM1
         GAMMA      GAM

32       TEOM1
         SIG

33       TEOM1
         COSGAM

34       TEOM1
         SINGAM

35       TEOM1
         COSSIG

36       TEOM1
         SINSIG
```

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

37	TEOM1 VG		
38	TEOM1 PSIT		
39	AEROY8B QBAR	PFC07 QB	TEOM1 QBAR
40	AEROY8B RMACH	ENG08 RMACH	TEOM1 MACH
41	TEOM1 GX	TEOM2 GX	
42	TEOM1 GY		
43	TEOM1 GZ		
44	TEOM1 VTI	REOM1 VTI	
45	TEOM1 FTPDLA		
46	TEOM1 FTPDLO		
47 ---- 48			
49	ENG08 RMACHP		
50	ENG08 TNMCH2		
51	TEOM2 AXB		

YAV-8B ARRAY SEARCH SEARCH A ARRAY

52		PFC07 AY8	REOM1 AY8	
53		I5OMS AZ	PFC07 AZB	REOM1 AZB
54		TEOM2 AX		
55	----	56		
57		TEOM2 XDD		
58	----	59		
60		TEOM2 XDD1		
61	----	62		
63		TEOM2 XDD2		
64	----	65		
66		TEOM1 XD	TEOM2 XD	
67	----	68		
69		TEOM2 XD1		
70	----	71		
72		TEOM2 XD2		
73	----	74		

YAV-8B ARRAY SEARCH | SEARCH A ARRAY

75	TEOM1 X	TEOM2 X	
76	TEOM1 Y	TEOM2 Y	
77	TEOM1 Z	TEOM2 Z	
78 ---- 83			
84	TEOM2 CXX	REOM1 CXX	
85 ---- 92			
93	REOM1 CXN		
94 ---- 101			
102	REOM1 PSI		
103	T5OMS THETA	AEROY8B THA	REOM1 THA
104	AEROY8B PHI	REOM1 PHI	
105	REOM1 SINPSI		
106	REOM1 COSPSI		
107	REOM1 SINTHA		
108	REOM1 COSTHA		

YAV-8B ARRAY SEARCH　　　　SEARCH A ARRAY

109	REOM1 SINPHI		
110	AEROY8B COSPHI	REOM1 COSPHI	
111 ---- 113			
114	AEROY8B U	ENG08 U	REOM1 U
115	AEROY8B V		
116			
117	I5OMS ALPHA	AEROY8B ALP	REOM1 ALPHA
118	AEROY8B BETA	REOM1 BETA	
119	AEROY8B SINALP	ENG08 SINALP	REOM1 SINALP
120	AEROY8B COSALP	ENG08 COSALP	REOM1 COSALP
121	ENG08 SINBET	REOM1 SINBET	
122	ENG08 COSBET	REOM1 COSBET	
123	AEROY8B ALPD	REOM1 ALPHAD	
124	REOM1 ALPHA1		
125	REOM1 BETAD		

YAV-8B ARRAY SEARCH

SEARCH A ARRAY

126	REOM1 BETA1					
127 ---- 136						
137	REOM2 MX					
138	REOM2 MY					
139	REOM2 MZ					
140	I50MS PD	PFC07 PD	REOM2 PD			
141	I50MS QD	PFC07 QD	REOM2 QD			
142	I50MS RD	PFC07 RD	REOM2 RD			
143	REOM2 E1D					
144	REOM2 E2D					
145	REOM2 E3D					
146	REOM2 E4D					
147	I50MS P	AEROY8B P	ENG08 P	PFC07 P	REOM1 P	REOM2 P
148	I50MS Q	AEROY8B Q	ENG08 Q	PFC07 Q	REOM1 Q	REOM2 Q

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

149		I50MS R	AEROY8B R	ENG08 R	PFC07 R	REOM1 R	REOM2 R
150		REOM1 E1	REOM2 E1				
151		REOM1 E2	REOM2 E2				
152		REOM1 E3	REOM2 E3				
153		REOM1 E4	REOM2 E4				
154		REOM2 PD2					
155	----	156					
157		REOM2 PD1					
158	----	159					
160		REOM2 E1D2					
161		REOM2 E2D2					
162		REOM2 E3D2					
163		REOM2 E4D2					
164		REOM2 E1D1					
165		REOM2 F2D1					

YAV-8B ARRAY SEARCH — SEARCH A ARRAY

166	REOM2 E301		
167	REOM2 E401		
168	REOM2 DELTA		
169	REOM2 KDELTA		
170 ---- 175			
176	TEOM1 ATM	ATMOS ATM	
177	ENG08 VS	TEOM1 VS	ATMOS VS
178	AEROY8B RHO	ATMOS RHO	
179	ATMOS PRESHPF		
180	ENG08 TEMPHR	ATMOS TEMPHR	
181	ENG08 PRESHPI	RCS07 PAMB	ATMOS PRESHPI
182	ATMOS TEMPHF		
183	ENG08 DELTD		
184	ENG08 ATT2		

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YAV-8B ARRAY SEARCH

SEARCH A ARRAY

185		ENG08 ASQRTT2				
186	----	194				
195		ATMOS INSTD				
196	----	200				
201		TEOM1 WN				
202	----	250				
251		WTBAL07 WEIGHT				
252		WTBAL07 RMASS	TEOM2 MASS			
253		AERDY8B CGFS	ENG08 CGFS	RCS07 CGFS	WTBAL07 CGFS	
254		AERDY8B CGBL	ENG08 CGBL	RCS07 CGBL	WTBAL07 CGBL	
255		AERDY8B CGWL	ENG08 CGWL	RCS07 CGWL	WTBAL07 CGWL	
256		WTBAL07 RIXX				
257		WTBAL07 RIYY				
258		WTBAL07 RIZZ				
259		WTBAL07 RIXZ				

YAV-8B ARRAY SEARCH　　　　SEARCH A ARRAY

260		WTBAL07 ICON	REOM2 ICON
261	----	269	
270		AEROY8B CG	WTBAL07 CG
271	----	272	
273		WTBAL07 BSMOMX	
274		WTBAL07 BSMOMY	
275		WTBAL07 BSMOMZ	
276	----	300	
301		AEROY8B CLNR	
302		AEROY8B CLNP	
303		AEROY8B DCLNF	
304		AEROY8B DCLNFJD	
305		AEROY8B YMOGE	
306		AEROY8B CLNBAT	
307		AEROY8B HCY	

YAV-8B ARRAY SEARCH SEARCH A ARRAY

308	AERDY8B HCYR
309	AERDY8B HCLL
310	AERDY8B CLNH
311	AERDY8B RSTAB
312	AERDY8B PSTAB
313	PFC07 DS
314	PFC07 DLA
315	PFC07 DRA
316 ----	317
318	AERDY8B HCLLAF
319 ----	320
321	AERDY8B ALPT
322	AERDY8B ALPF
323	AERDY8B CMT62
324	AERDY8B CMF62

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YAV-8B ARRAY SEARCH   SEARCH A ARRAY

325	AEROY8B EPS		
326	I50MS AEROX	AEROY8B AEROX	TEOM2 AEROX
327	I50MS AEROY	AEROY8B AEROY	
328	I50MS AEROZ	AEROY8B AEROZ	
329	AEROY8B AEROL	REOM2 AEROL	
330	AEROY8B AEROM		
331	AEROY8B AERON		
332	AEROY8B S		
333	AEROY8B B		
334	AEROY8B CBAR		
335 ---- 340			
341	AEROY8B CGREF		
342	AEROY8B CMQ		
343	AEROY8B CMALPD		

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

```
344         AEROY8B
            RLIFT

345         AEROY8B
            RDRAG

346         AEROY8B
            CL

347         AEROY8B
            CD

348         AEROY8B
            CN

349         AEROY8B
            CA

350         AEROY8B
            CM

351         AEROY8B
            RK4

352  ----     354

355         AEROY8B
            CNGE

356         AEROY8B
            CAGE

357         AEROY8B
            CMGE

358         AEROY8B
            CNPOWER

359         AEROY8B
            CAPOWER
```

YAV-8B ARRAY SEARCH SEARCH A ARRAY

360	AEROY8B CMPOWER
361	AEROY8B CYDR
362	AEROY8B CLLDR
363	AEROY8B CLNDR
364	
365	AEROY8B DCDFL
366	AEROY8B DCDFR
367	AEROY8B HCLLB
368	AEROY8B HCYB
369	AEROY8B CNB
370	AEROY8B CNDA
371	AEROY8B HCLLDA
372	AEROY8B HCYDA
373	AEROY8B CNDR

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

374		AERODY8B HCLLDR
375		AERODY8B HCYDR
376	----	377
378		AERODY8B HCLBPOW
379		AERODY8B CMBASE
380		AERODY8B CLBASE
381		AERODY8B CDBASE
382		AERODY8B HCMPOW
383		AERODY8B DCLPOW
384		AERODY8B DCMFL
385		AERODY8B DCMFR
386		AERODY8B DCLFL
387		AERODY8B DCLFR
388		AERODY8B HCMDA

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

389		AEROY8B DCLAL
390		AEROY8B DCLAR
391		AEROY8B DCDAL
392		AEROY8B DCDAR
393	----	394
395		AEROY8B DCMFJI
396		AEROY8B DCMSTAB
397		AEROY8B CLSTAB
398		AEROY8B CDSTAB
399		AEROY8B HCDSTOW
400		AEROY8B CDDR
401		AEROY8B CMSTING
402		AEROY8B HTCM
403		AEROY8B HICL

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YAV-8B ARRAY SEARCH

SEARCH A ARRAY

404		AEROY8B HICD
405		AEROY8B HYAW
406		AEROY8B HROL
407		AEROY8B HISF
408		AEROY8B HIFX
409		AEROY8B HIFZ
410		AEROY8B HIRM
411		AEROY8B HIYN
412		AEROY8B VEQ
413	----	414
415		AEROY8B RTHALP
416		AEROY8B BETAP
417		AEROY8B HP
418	----	421
422		AEROY8B CMGE10

YAV-8B ARRAY SEARCH SEARCH A ARRAY

423		AEROY8B THALP
424		AEROY8B RMIGE
425		AEROY8B YMIGE
426		AEROY8B SFIGE
427		AEROY8B SCALR
428	----	429
430		AEROY8B YDSFTB
431		AEROY8B YDSFTP
432		AEROY8B DYM1P
433		AEROY8B DYMBIAS
434		AEROY8B YK
435		AEROY8B DYMPHI
436		AEROY8B TERM
437		AEROY8B DRMIGE

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

438	AEROY8B DRMPHI
439	AEROY8B RK6
440	AEROY8B RC5
441	AEROY8B GKCLLP
442	AEROY8B GKCMP
443	AEROY8B CY
444	AEROY8B CYBASIC
445	AEROY8B CYPOWER
446	AEROY8B CYBASE
447	AEROY8B DCYAIL
448	AEROY8B DCYRUD
449	AEROY8B SFOGE
450	AEROY8B CLL
451 ----	454

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

455		AEROYBB CMQT
456		AEROYBB CMALPDT
457	----	477
478		PFC07 STLON
479		PFC07 STLAT
480		PFC07 PEDAL
481		PFC07 TRIMLON
482		PFC07 TRIMLAT
483		PFC07 TRIMDIR
484	----	485
486		PFC07 ITMDIR
487		PFC07 TRATDIR
488		PFC07 PEDALT
489	----	494
495		PFC07 ISASLON

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

496		PFC07 ISASLAT		
497		PFC07 ISASDIR		
498		PFC07 RCSF		
499	----	502		
503		I50MS DHTD	AEROY8B DHTD	PFC07 DHTD
504				
505		AEROY8B DAL	PFC07 DLAD	
506		AEROY8B DAR	PFC07 DRAD	
507		PFC07 DAD		
508	----	512		
513		AEROY8B DRUDD	PFC07 DRUDD	
514		AEROY8B RK7		
515	----	518		
519		PFC07 FBWG		
520		AEROY8B CLLBAS		

YAV-8B ARRAY SEARCH SEARCH A ARRAY

521	AERDY8B CLLPOWR	
522	AERDY8B CLLBASE	
523	AERDY8B DCLLAIL	
524	AERDY8B RK10	
525	AERDY8B TEMPX3	
526	I50MS STLDPC	PFC07 STLDPC
527	I50MS STLAPC	PFC07 STLAPC
528	I50MS RUDPC	PFC07 RUDPC
529	PFC07 TLDPC	
530	PFC07 TLAPC	
531 ---- 549		
550	AERDY8B CMGE81	
551	AERDY8B CNGE55	
552	AERDY8B CAGE55	

YAV-8B ARRAY SEARCH

SEARCH A ARRAY

553		AEROY8B CMGE55
554	----	556
557		AEROY8B DCN60
558		AEROY8B DCM60
559		
560		AEROY8B DCLLRUD
561		AEROY8B CLLR
562		AEROY8B CLLP
563		
564		PFC07 POS80
565	----	568
569		AEROY8B DCA60
570		AEROY8B DCN50
571		AEROY8B DCA50
572		AEROY8B DCM50

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

573		AEROY8B DCM10
574		AEROY8B RKO
575		AEROY8B RMGE00
576		AEROY8B RM1P2
577		AEROY8B RM4P12
578		AEROY8B RM7P05
579		PFC07 PGAIN
580		PFC07 RGAIN
581		PFC07 AYGN
582		PFC07 QGAIN
583	----	593
594		SFC07 DTIME
595		SFC07 DELTHJ
596	----	597
598		AEROY8B SFGE60

```
YAV-8B ARRAY SEARCH                          SEARCH A ARRAY

599         AEROY8B
            SFGE81

600

601         SFC07
            DROPLTM

602         SPC07
            DVU

603         SFC07
            DVD

604         SFC07
            RATE1

605

606         SFC07
            RATE2

607  ----    611

612         SFC07
            HML

613  ----    615

616         SFC07
            RDROPD

617

618         PFC07       SFC07
            DROOP       DROOP

619  ----    621

622         SFC07
            VLA
```

YAV-8B ARRAY SEARCH — SEARCH A ARRAY

623				
624		SFC07 DFLAPM		
625	----	626		
627		I50MS IMODE	PFC07 IMODE	SFC07 IMODE
628		SFC07 ILID		
629				
630		SFC07 R		
631	----	632		
633		SFC07 DELFLAP		
634		AERDY8B FLAP	SFC07 FLAP	
635		I50MS IFLAP	SFC07 IFLAP	
636		SFC07 DNFLAP		
637		I50MS DFLAPL	AERDY8B DFLAPL	SFC07 DFLAPL
638		AERDY8B DFLAPR	SFC07 DFLAPR	
639		AERDY8B DNLID	SFC07 DNLID	WTBAL07 DNLID

YAV-8B ARRAY SEARCH SEARCH A ARRAY

640	SFC07 DROP	
641 ---- 642		
643	SFC07 TERP	
644 ---- 645		
646	SFC07 RDROPU	
647		
648	SFC07 TEMP	
649	SFC07 DFLAPC	
650		
651	ENG08 RFTX	RCS07 RFTX
652	ENG08 RFTY	RCS07 RFTY
653	ENG08 RFTZ	RCS07 RFTZ
654	ENG08 RMR	RCS07 RMR
655	ENG08 RMP	RCS07 RMP
656	ENG08 RMY	RCS07 RMY

YAV-8B ARRAY SEARCH SEARCH A ARRAY

657	ENG08 RWTOT	RCS07 RWTOT
658	RCS07 PDUCT	
659		
660	RCS07 RPUP3	
661	RCS07 RPDP3	
662	RCS07 RPFP3	
663	RCS07 RPTP3	
664	RCS07 RPT	
665	RCS07 RPF	
666	RCS07 RPU	
667	RCS07 RPD	
668	RCS07 REUW	
669	RCS07 REDW	
670	RCS07 REWF	

YAV-8B ARRAY SEARCH　　　　SEARCH A ARRAY

671	RCS07 REWT
672	RCS07 REFP
673	RCS07 REFT
674	RCS07 REFW
675	RCS07 RETFW
676	RCS07 RMFT
677	RCS07 RMFF
678	RCS07 RMFWD
679	RCS07 RMFWU
680	RCS07 RWT
681	RCS07 RWF
682	RCS07 RWWD
683	RCS07 RWWU
684	

YAV-8B ARRAY SEARCH SEARCH A ARRAY

685	RCS07 RXRPTG	
686	RCS07 RXYPTG	
687	RCS07 RXVF	
688	RCS07 RXVWD	
689	RCS07 RXVWU	
690	RCS07 RFGR	
691	RCS07 RFGY	
692	RCS07 RFGF	
693	RCS07 RFGWD	
694	RCS07 RFGWU	
695	RCS07 RAWUL	PFC07 DARCSUL
696	RCS07 RAWDL	PFC07 DARCSDL
697	RCS07 RAYS	PFC07 DRRCS
698	RCS07 RAF	PFC07 DHRCSF

YAV-8B ARRAY SEARCH

SEARCH A ARRAY

699	RCS07 RAPR	PFC07 DHRCSA
700	RCS07 RACF	
701	RCS07 RASF	
702		
703	RCS07 RAWUR	PFC07 DARCSUR
704	RCS07 RAWDR	PFC07 DARCSDR
705 ---- 708		
709	AEROY8B DCLLF	
710 ---- 713		
714	AEROY8B DCLLFJI	
715	AEROY8B RHDGE	
716 ---- 723		
724	AEROY8B CYBAT	
725	AEROY8B CLLBAT	
726	AEROY8B CLN	

YAV-8B ARRAY SEARCH — SEARCH A ARRAY

727	AEROY8B CLNBAS
728	AEROY8B CLNPOWR
729	AEROY8B CLNBASE
730	AEROY8B DCLNAIL
731	AEROY8B DCLNRUD
732	I50MS PDEG
733	I50MS QDEG
734	I50MS RDEG
735 ---- 736	
737	PFC07 TGO
738	PFC07 PFLTO
739	
740	PFC07 DLAO
741	PFC07 ARTL
742	PFC07 DRAO

YAV-8B ARRAY SEARCH — SEARCH A ARRAY

743	PFC07 ARTR		
744	PFC07 YRCS		
745	PFC07 YRATE		
746	PFC07 DRTRCSF		
747	PFC07 DRTRCSA		
748	PFC07 ANY		
749	PFC07 AYHUD		
750	ENG08 PBLT		
751	I50MS FTX	ENG08 FTX	TEQM2 THX
752	I50MS FTY	ENG08 FTY	
753	I50MS FTZ	ENG08 FTZ	
754	ENG08 THL	REQM2 THL	
755	ENG08 THN		
756	ENG08 THN		

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YAV-8B ARRAY SEARCH SEARCH A ARRAY

757		ENG08 PWFGC	
758		ENG08 PKSPLAY	
759			
760		ENG08 DTHR	
761		ENG08 FKALT	
762		ENG08 DELTT2	
763	----	768	
769		AEROY8B FGTHR	ENG08 PFG
770			
771		ENG08 RPM	
772	----	775	
776		I5OMS PCTHR	ENG08 PCTHR
777		I5OMS PCNOZ	ENG08 PCNOZ
778		ENG08 PWACOR	
779	----	780	

YAV-8B ARRAY SEARCH　　　SEARCH A ARRAY

781	ENG08 TDEFUEL			
782	ENG08 PQFUEL	WTBAL07 FUEL		
783				
784	ENG08 PWFT			
785	ENG08 PWFSS			
786	ENG08 BINGO			
787	ENG08 FUELLOW			
788	AEROY8B THETAJ	ENG08 PNOZPOS	RCS07 PNOZPOS	SFC07 THETAJ
789	ENG08 PFGCOR			
790	ENG08 PCFUEL			
791	WTBAL07 FUELMX			
792	ENG08 TZERO			
793	ENG08 PEGBLDC			
794	ENG08 PWFBLDC			

YAV-8B ARRAY SEARCH SEARCH A ARRAY

795	ENG08 PFGRLOC
796	ENG08 PWFCOR
797	
798	ENG08 PWFCOM1
799	ENG08 PWFCOM
800	ENG08 PTEMP
801	ENG08 PWFACEL
802	ENG08 PWFDCEL
803	ENG08 PDELNF
804	ENG08 PNFRPM
805	ENG08 PNFCOR
806	ENG08 PSD
807	ENG08 PEGTCOR
808	
809	ENG08 PPHCOR

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

810	ENG08 PTBCOR		
811			
812	ENG08 PRAM		
813	ENG08 PEGTD		
814	ENG08 PEGT		
815	ENG08 PPH	RCS07 PPH	
816	I50MS PTBLD	ENG08 PTBLD	RCS07 PTBLD
817			
818	ENG08 PEGTC		
819	ENG08 PWATER	WTBAL07 PWATER	
820			
821	ENG08 PMP		
822 ---- 824			
825	ENG08 PWA		
826			

YAV-8B ARRAY SEARCH SEARCH A ARRAY

827	ENG08 PKWF2	
828	ENG08 TRINGO	
829	ENG08 IFUELOW	
830		
831	ENG08 IENGFO	
832		
833	ENG08 TCFS	
834	ENG08 TCWL	
835	I50MS IWATER	ENG08 TWATER
836	ENG08 PSA	
837	ENG08 NR	
838		
839	ENG08 PCDP	
840		
841	ENG08 TTC	

YAV-8B ARRAY SEARCH SEARCH A ARRAY

842	ENG08 PK1
843	ENG08 PK2
844	ENG08 PK6
845	ENG08 PK3
846	ENG08 DWRCS
847	ENG08 PNFRCS
848	ENG08 PKOPER
849	ENG08 FGOFGM
850	ENG08 TTCC
851	ENG08 JPTC
852	ENG08 XK1
853	ENG08 XK2
854	ENG08 PSAR
855	ENG08 TTIME

YAV-8B ARRAY SEARCH SEARCH A ARRAY

856	----	864				
865		ENG08 PMINLTT				
866	----	867				
868		ENG08 RLIMLTT				
869	----	870				
871		ENG08 YMINLTT				
872	----	873				
874		ENG08 ILIMOFF				
875		ENG08 IJPT				
876		TEOM2 GGX				
877	----	878				
879		REOM2 GGL				
880	----	881				
882		SFC07 IGEAR				
883		AEROY8B DNGEAR	ENG08 DNGEAR	PFC07 DELGEAR	SFC07 DNGEAR	WTBAL07 DNGEAR
884	----	887				

YAV-8B ARRAY SEARCH SEARCH A ARRAY

888		ENG08 DTCFS		
889	----	893		
894		ENG08 IWATFLO		
895	----	899		
900		PFC07 IWTONW	SFC07 IWONW	
901	----	928		
929		ENG08 SVCAL	PFC07 VCAL	SFC07 VKTS
930	----	942		
943		I50MS PDDEG		
944		I50MS QDDEG		
945		I50MS RDDEG		
946	----	958		
959		I50MS ICASE	ATMOS ICASE	
960	----	964		
965		ENG08 SUCAL		
966	----	972		

YAV-8B ARRAY SEARCH   SEARCH A ARRAY

```
973        I50MS
           XTOT

974        I50MS
           YTOT

975        I50MS
           ZTOT

976 ----    999

1000       I50MS
           ANZB
```

APPENDIX C

YAV-8B DATA PLOTS

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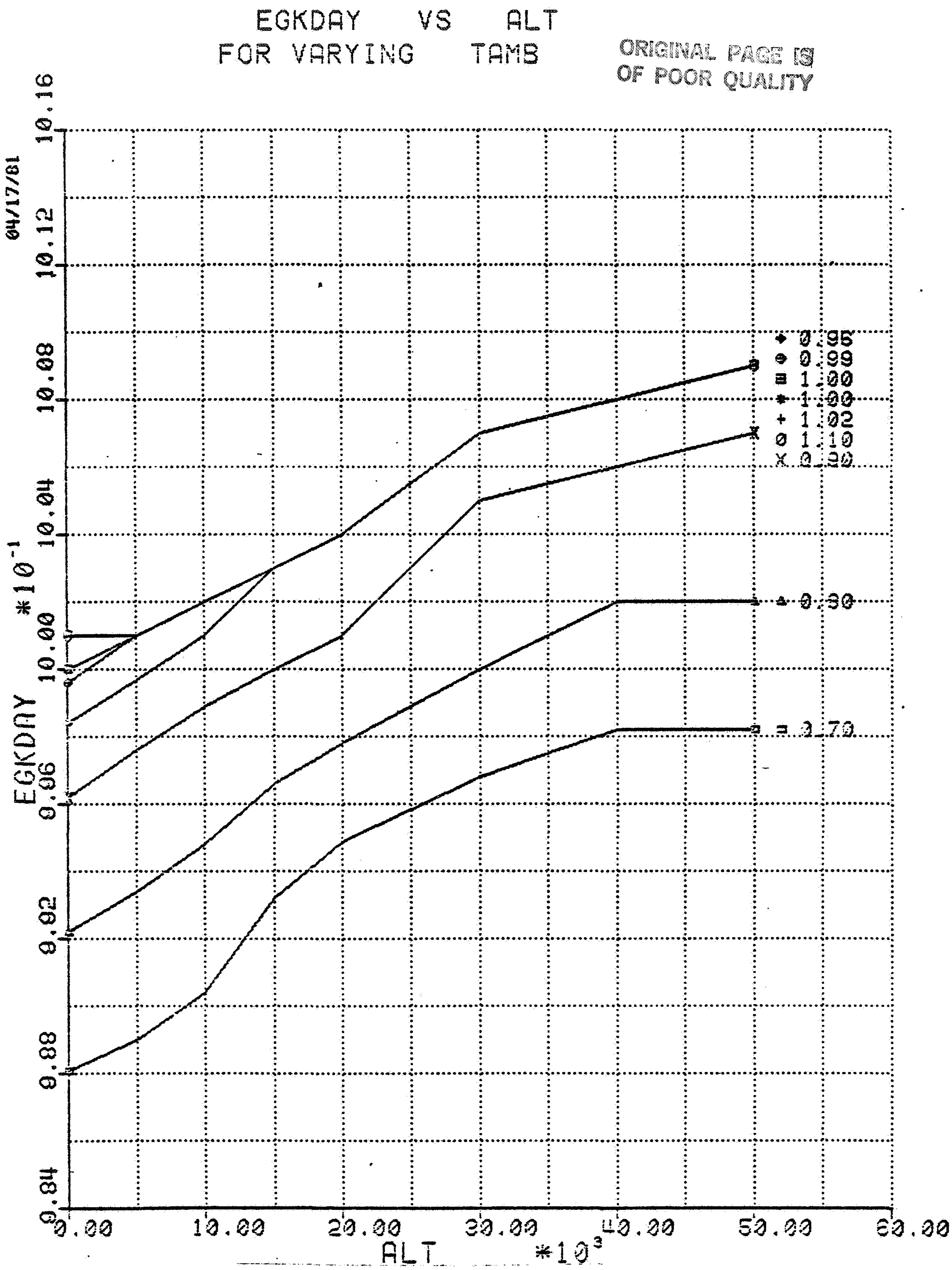
INDEX TO ENGINE DATA PLOTS

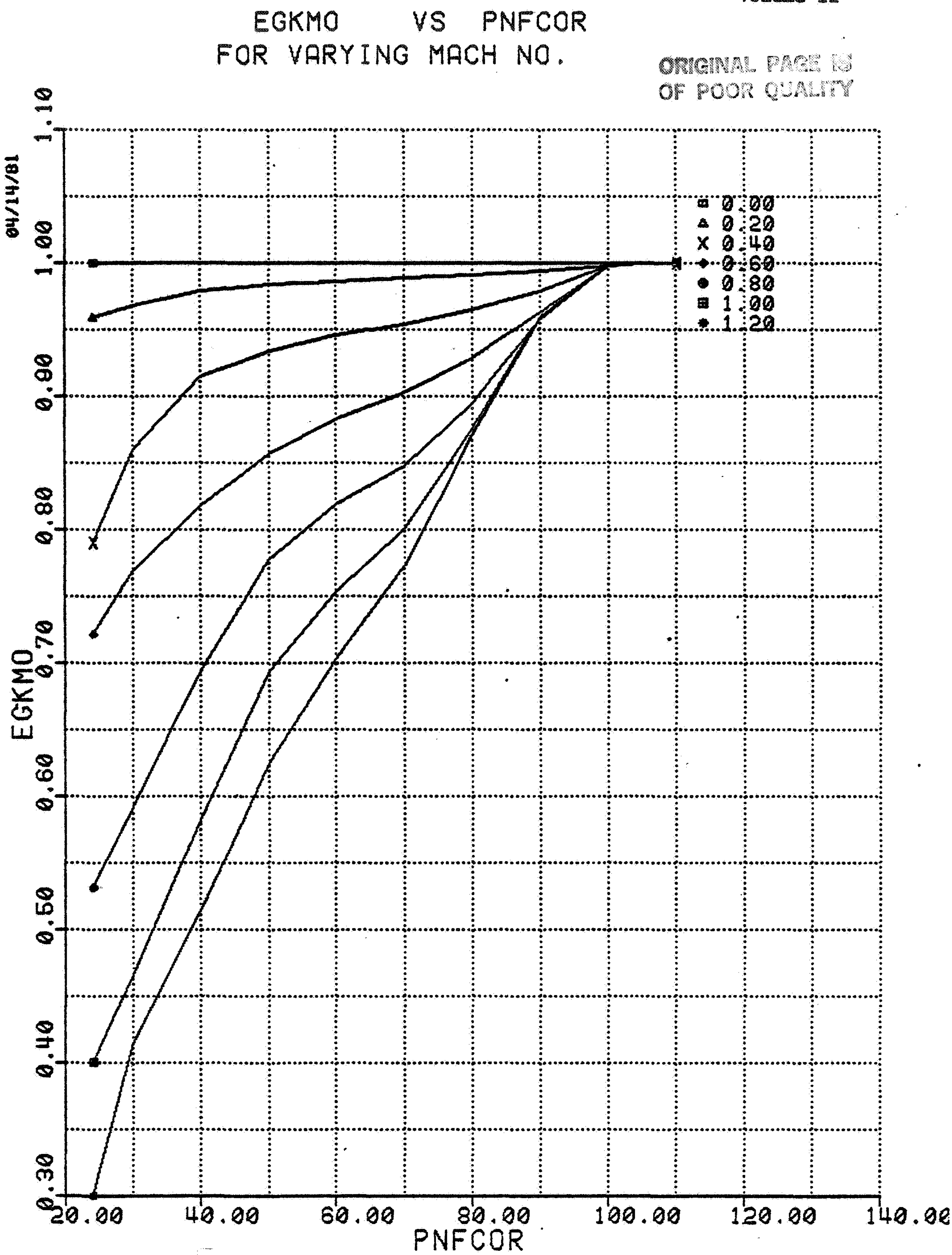
DEPENDENT VARIABLE	DEFINITION	DATA TABLE NAME	PAGE
EGKDAY	Ambient temperature corrections to EGT as a function of altitude and ambient temperature ratio	EGKDAYU	C-4
EGKMO	Mach number correction to EGT as a function of corrected fan speed and Mach number	EGKMOU	C-5
FKALT	Altitude correction to gross thrust as a function of corrected fan speed and ambient pressure	FKALTU	C-6
FKSCRUB	Nozzle correction to scrub drag as a function of nozzle position	FKSCRBU	C-7
NR	Ram recovery ratio factor as a function of corrected fan speed and Mach number	NRTABU	C-8
PBLI	Inlet and boundary layer bleed drag as a function of corrected airflow and Mach number	PBLIU	C-9
PEGBLDC	RCS bleed correction to EGT as a function of corrected fan speed	EKRCSTU	C-10
PEGTCOR	Jet pipe temperature as a function of corrected fan speed and ram recovery ratio	EGTABU	C-11
PENTMPD	EGT corrections due to nozzle position (dry) as a function of corrected fan speed and nozzle position	EKNOZDU	C-12
PENTMPW	EGT corrections due to nozzle position (wet) as a function of corrected fan speed and nozzle position	EKNOZWU	C-13
PFGBLDC	RCS bleed correction to gross thrust as a function of corrected fan speed	PFGABU	C-14
PFGCOR	Corrected gross thrust as a function of corrected fan speed and Mach number	FGTABU	C-15
PFGMAX	Maximum corrected gross thrust as a function of Mach number at 100% corrected fan speed	FGTABU	C-16

INDEX TO ENGINE DATA PLOTS (Cont'd)

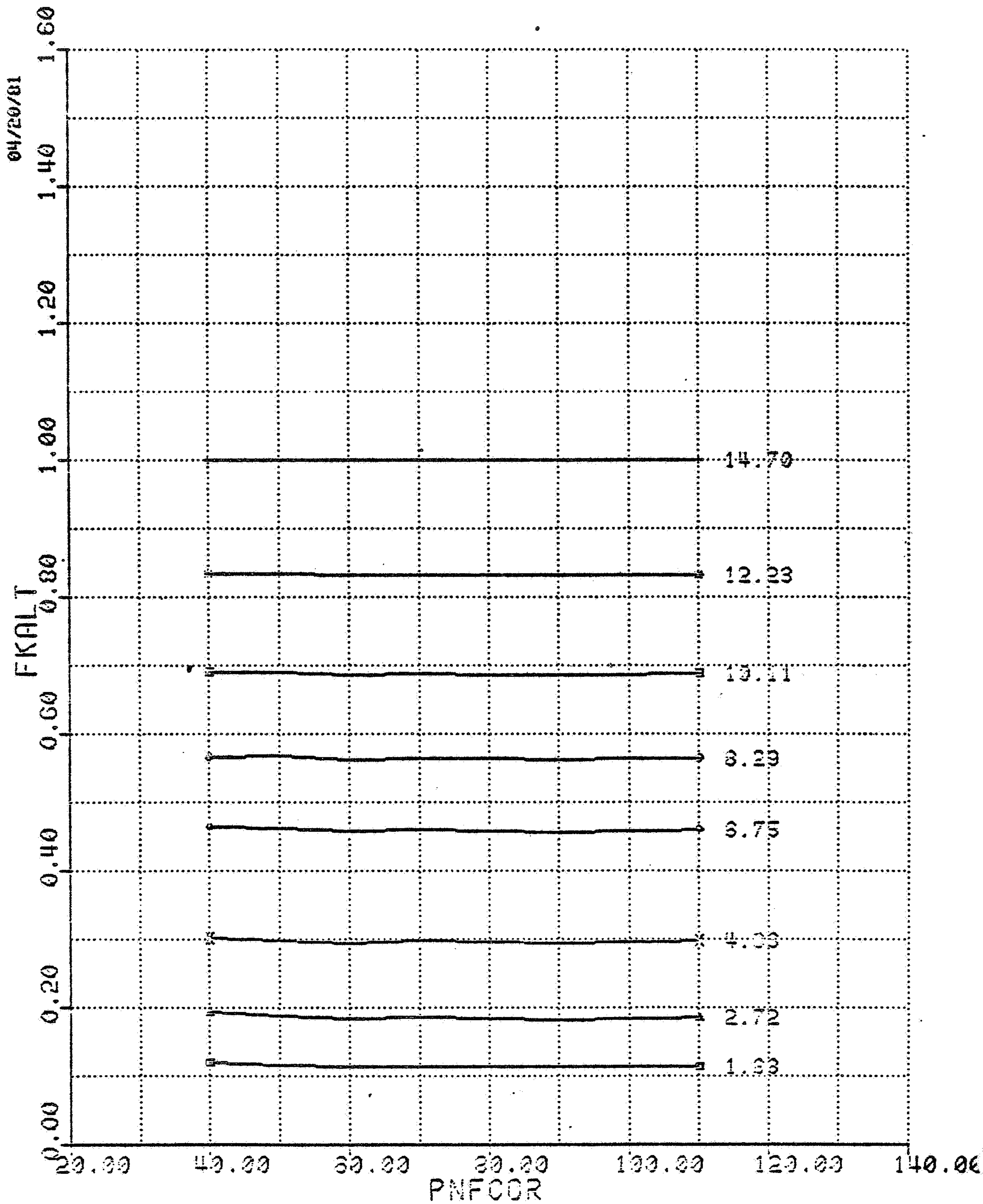
INDEX TO ENGINE DATA PLOTS (Cont'd)

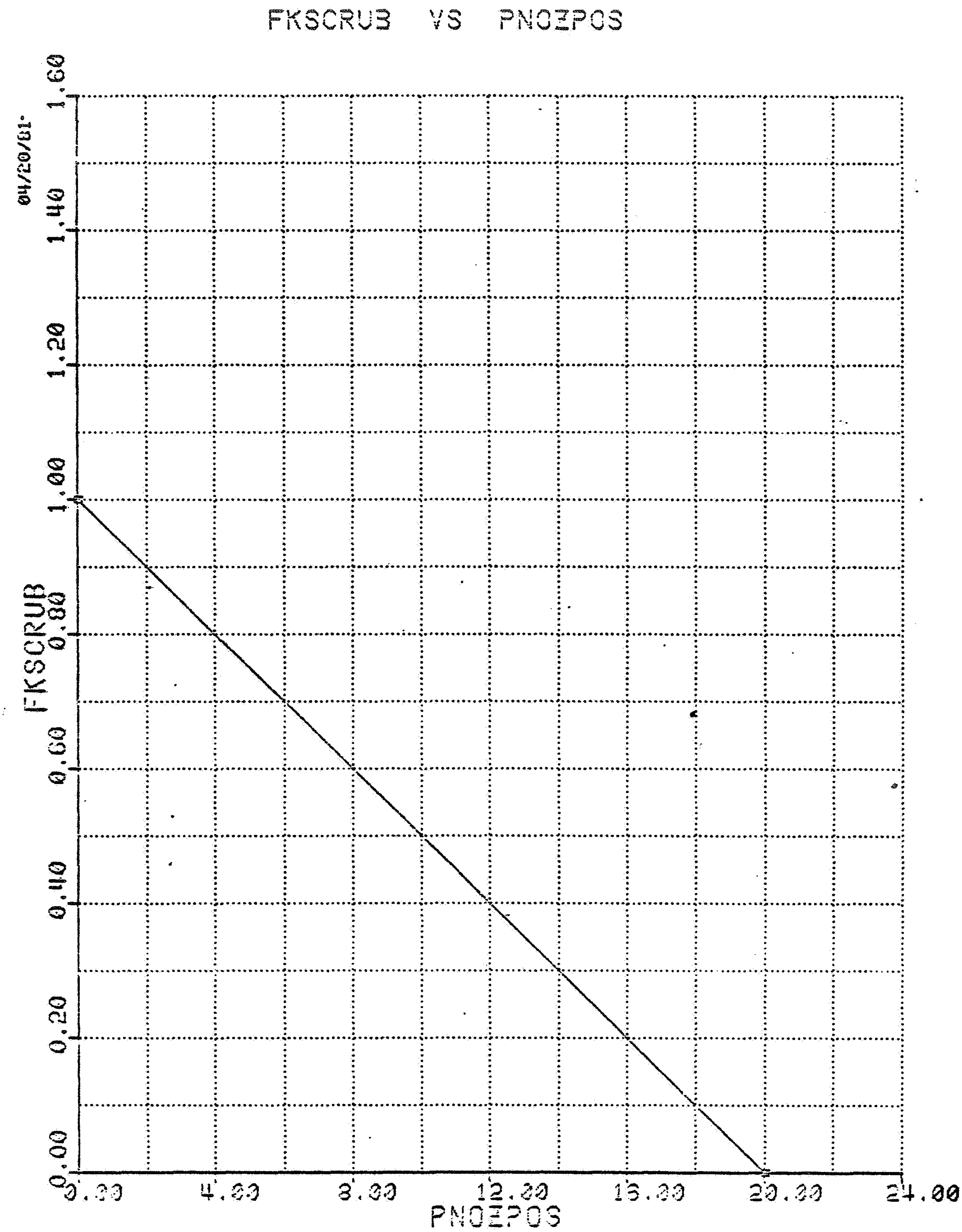
DEPENDENT VARIABLE	DEFINITION	DATA TABLE NAME	PAGE
PWWFC	Water injection correction to fuel flow as a function of corrected fan speed	WFWIU	C-30
TCF	Engine thrust center (fuselage station) as a function of corrected fan speed and nozzle position	TCFSU	C-31
TCRCS	RCS correction to thrust center (fuselage station) as a function of total RCS bleed and corrected fan speed	FSRCSU	C-32
TCWL	Engine thrust center (waterline) as a function of corrected fan speed	TCWLU	C-33
TZERO	Fan speed acceleration limit as a function of percent maximum gross thrust	TOPTS	C-34
WFKDAY	Ambient temperature corrections to fuel flow as a function of ambient temperature ratio and altitude	WFKDAYU	C-35
WFKMO	Mach number corrections to fuel flow as a function of corrected fan speed and Mach number	WFKMOU	C-36


EGKDAY VS ALT
FOR VARYING TAMB
04/17/81
10.16
10.12
10.08
10.04
10.00
9.96
9.92
9.88
9.84
EGKDAY *10^-1
0.00
10.00
20.00
30.00
40.00
50.00
60.00
ALT *10^3
0.95
0.99
1.00
1.00
1.02
1.10
0.90
0.80
0.70


EGKMO VS PNFCOR
FOR VARYING MACH NO.
04/14/81
EGKMO
PNFCOR
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
1.10
20.00
40.00
60.00
80.00
100.00
120.00
140.00
0.00
0.20
0.40
0.60
0.80
1.00
1.20

FKALT VS PNFCOR
FOR VARYING PRESHP1




FKSCRUB VS PNOZPOS
04/20/81
FKSCRUB
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00
PNOZPOS

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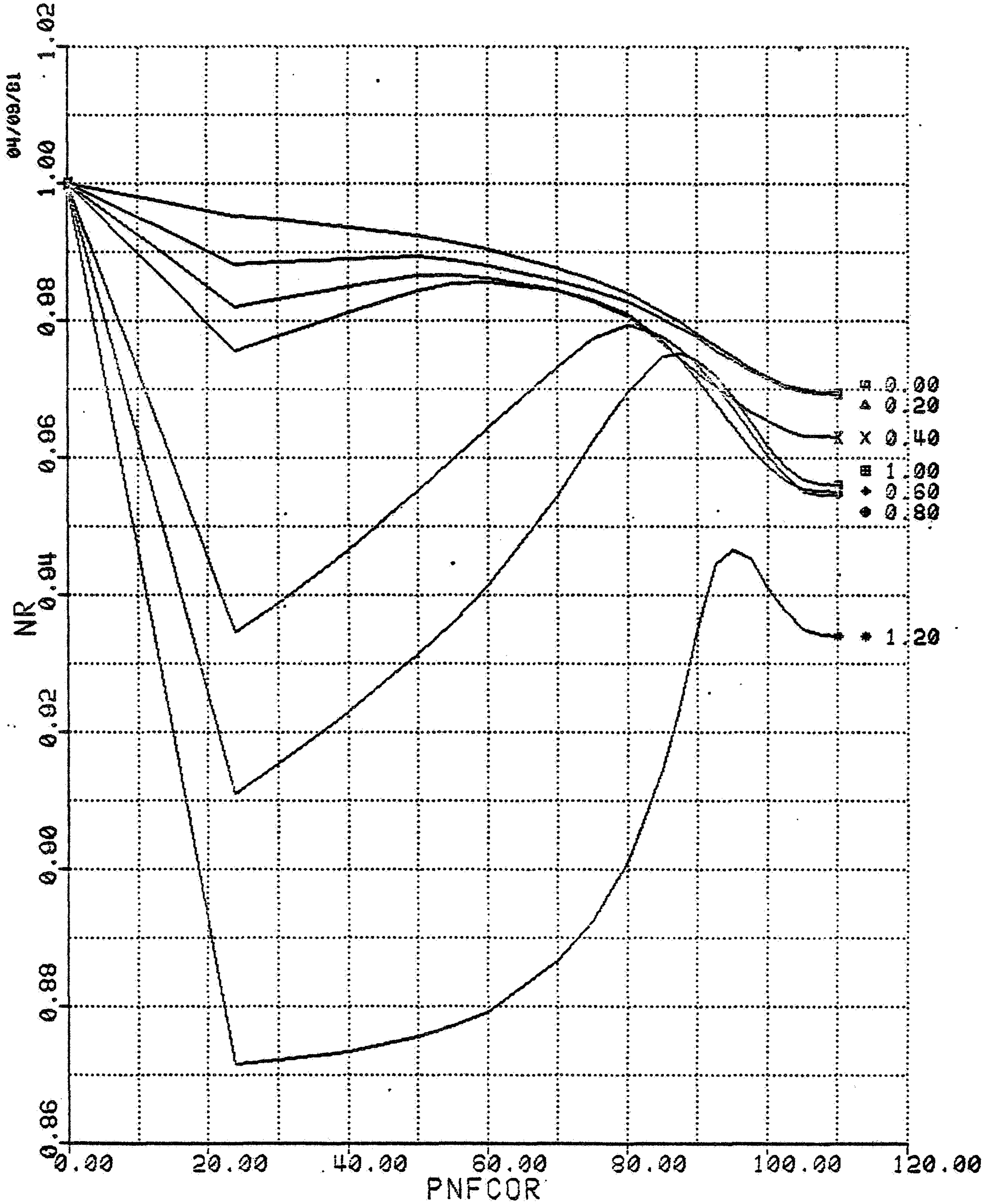
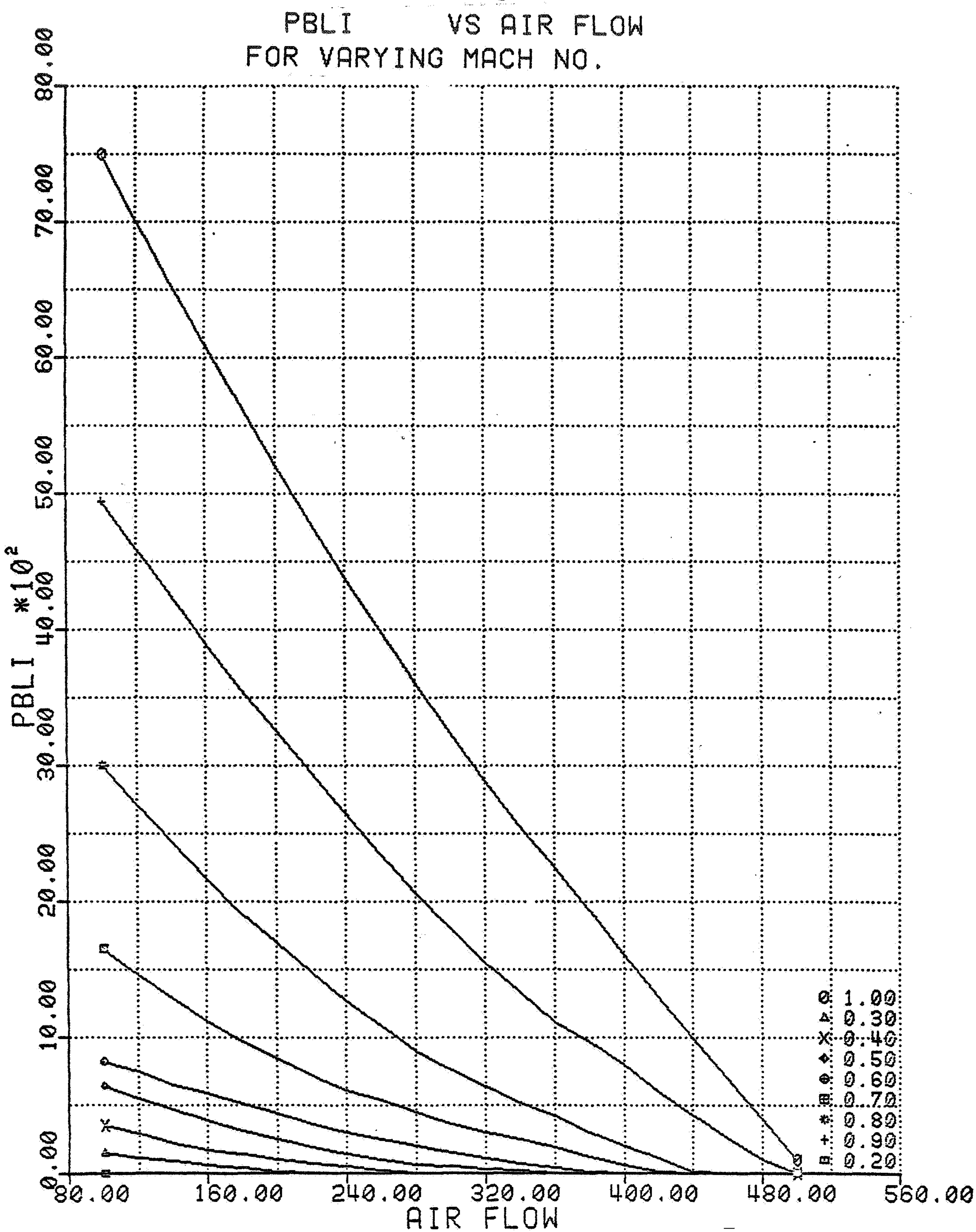
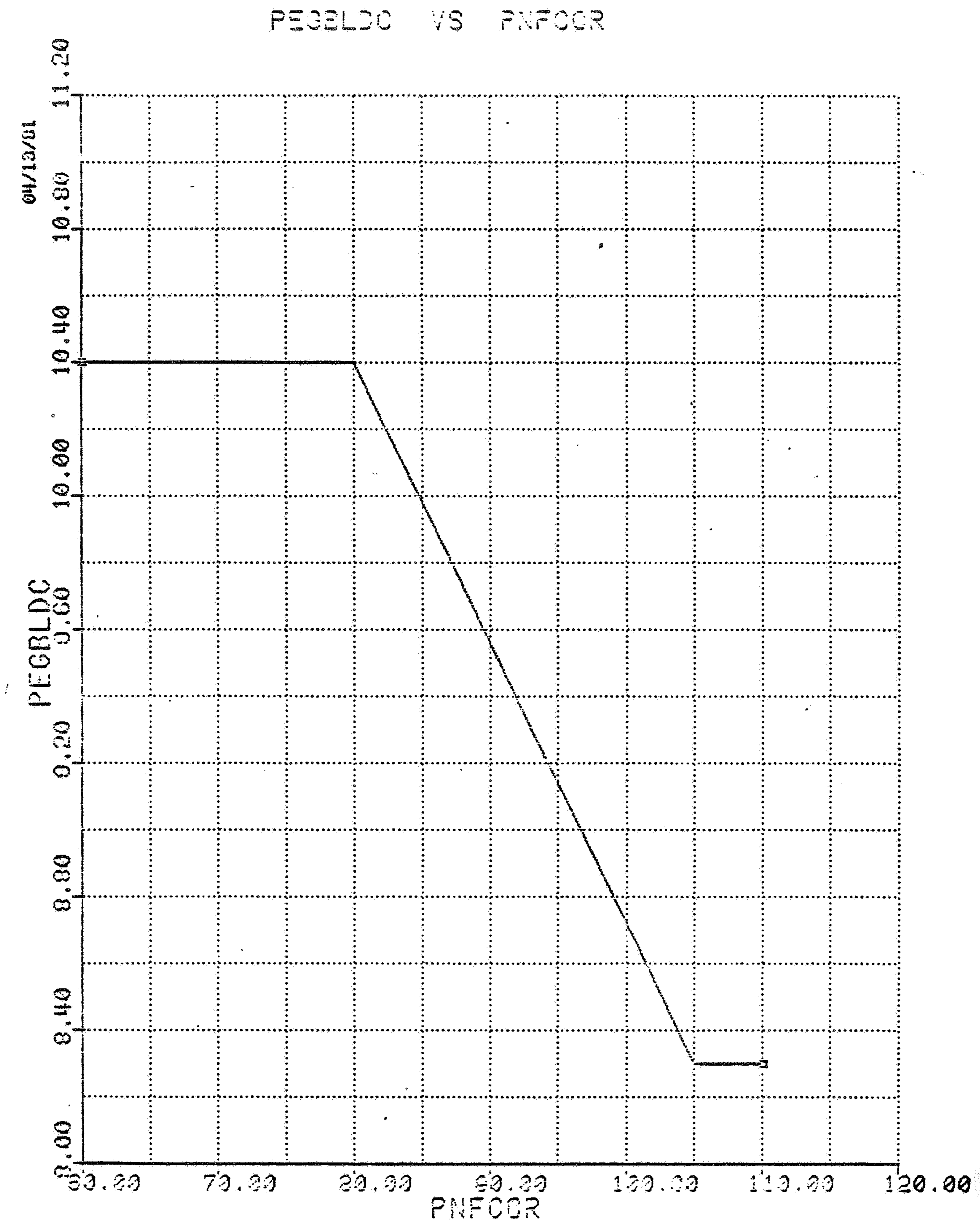
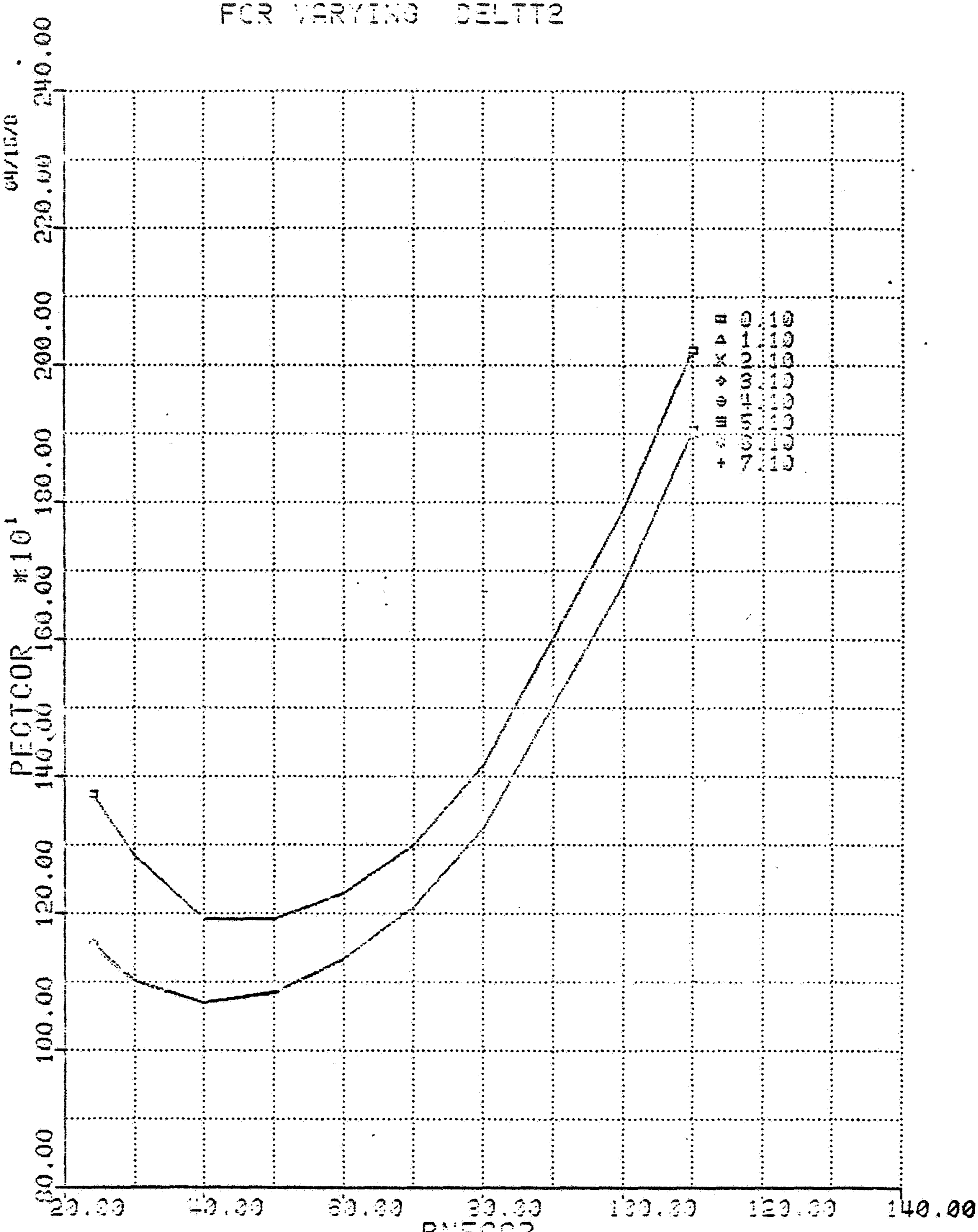
NR VS PNFCOR
FOR VARYING MACH NO.



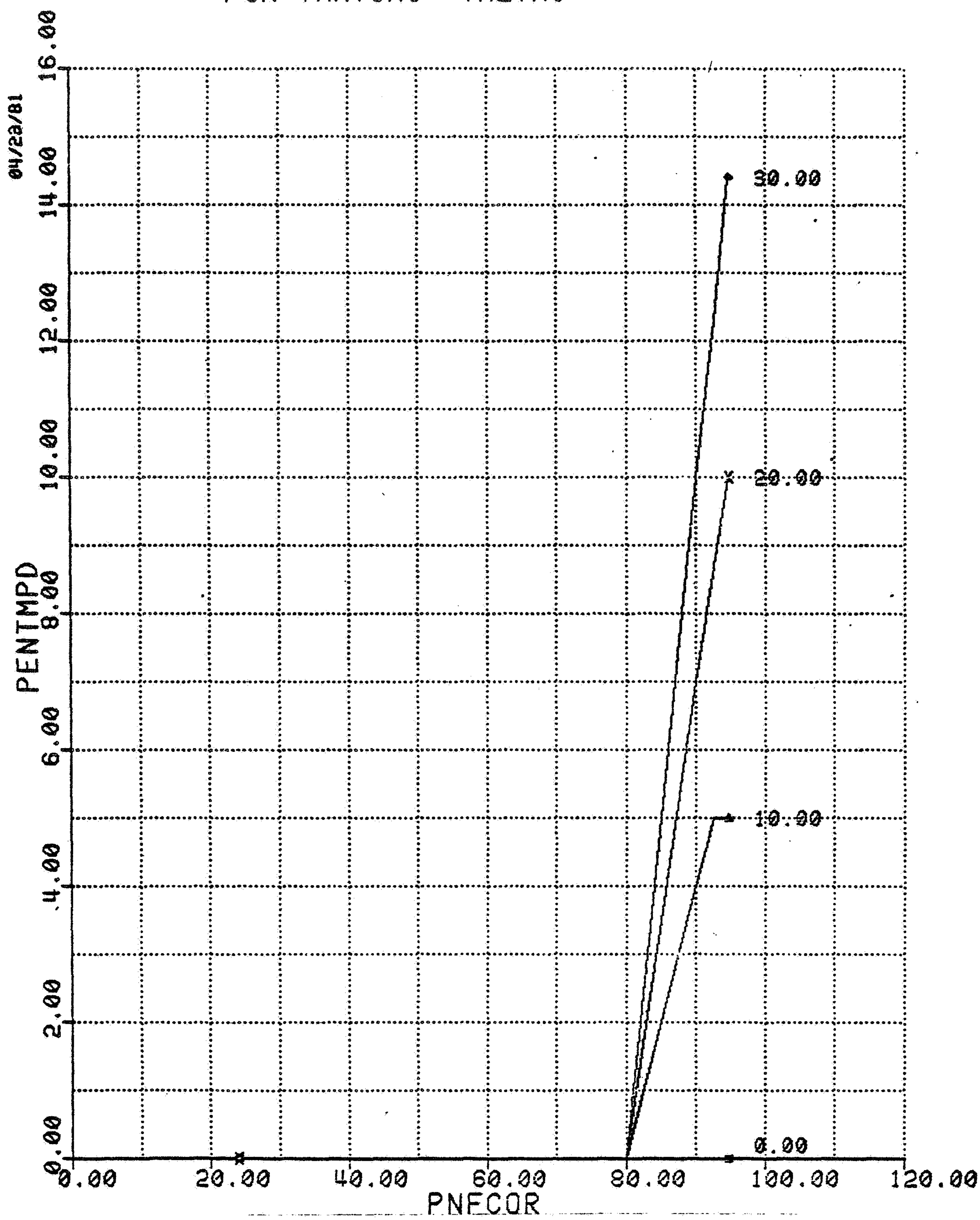

PBLI VS AIR FLOW
FOR VARYING MACH NO.
PBLI *10²
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
80.00
160.00
240.00
320.00
400.00
480.00
560.00
AIR FLOW
1.00
0.30
0.40
0.50
0.60
0.70
0.80
0.90
0.20


PEGRLDC VS PNFCOR
04/13/81
11.20
10.80
10.40
10.00
9.60
9.20
8.80
8.40
8.00
PEGRLDC
60.00
70.00
80.00
90.00
100.00
110.00
120.00
PNFCOR

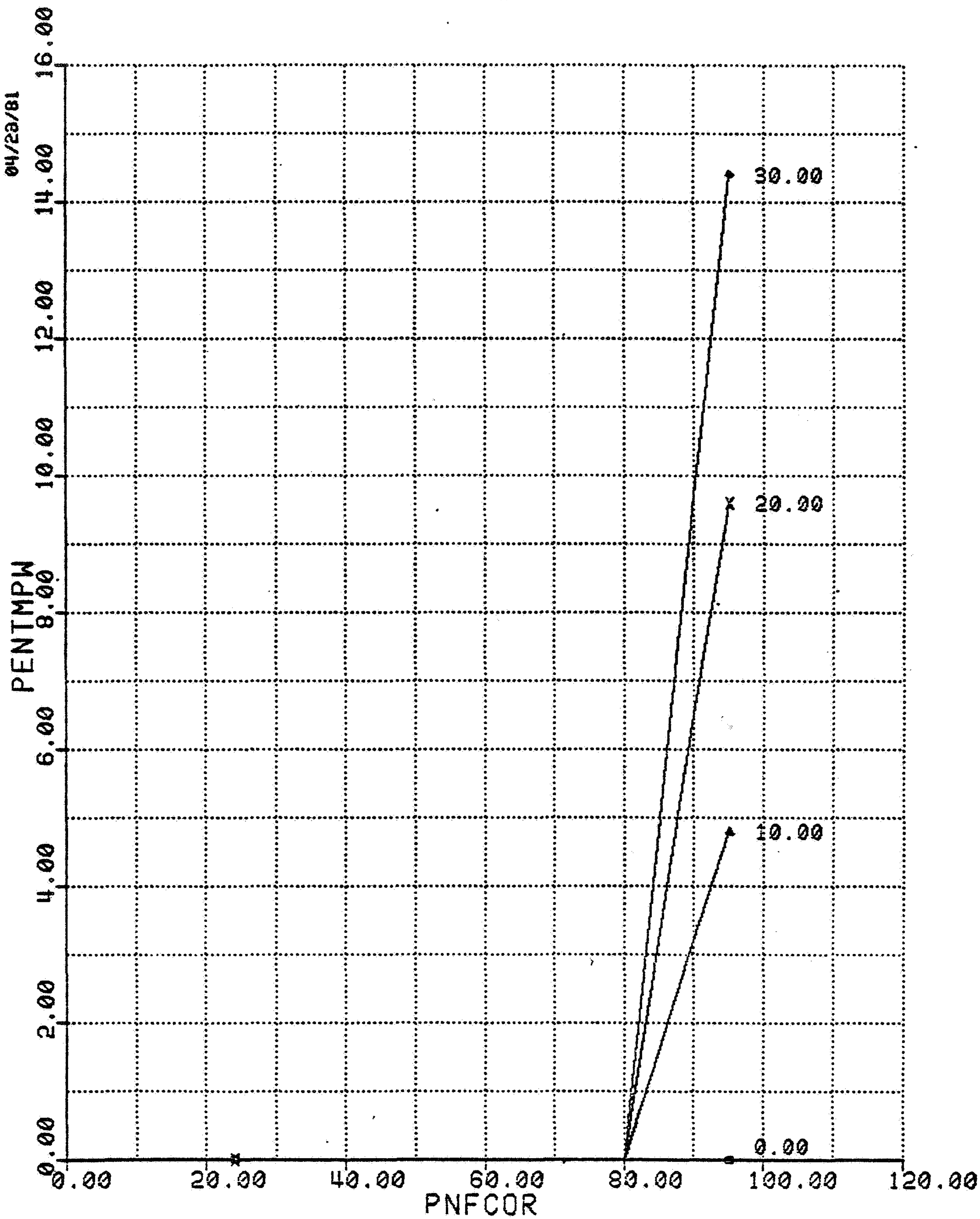
PEGTCOR VS PNFCCR
FOR VARYING DELTT2

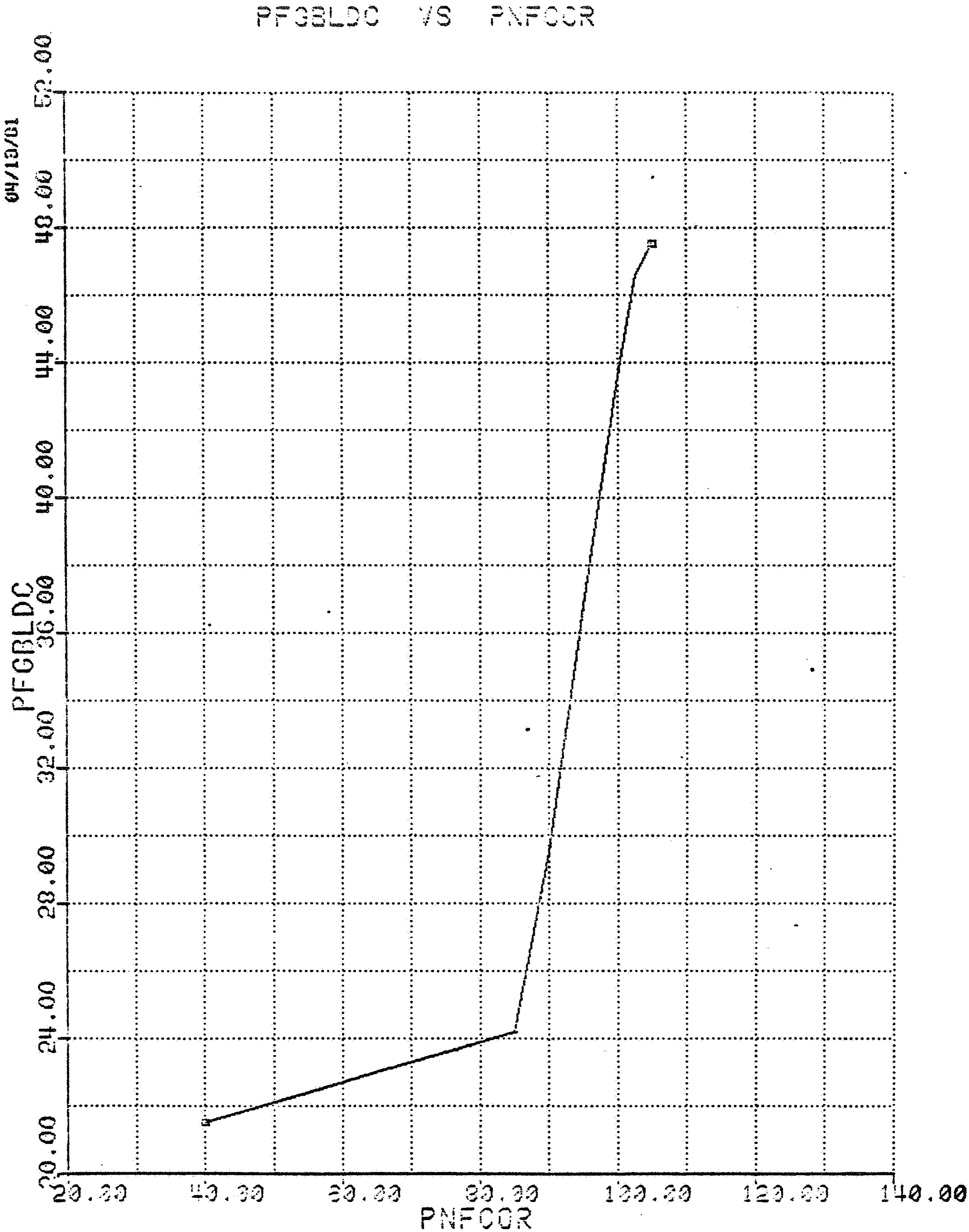


PENTMPD VS PNFCOR
FOR VARYING THETAJ



PENTMPW VS PNFCOR
FOR VARYING THETAJ




PFGBLDC VS PNFCOR
04/13/81
PFGBLDC
20.00
24.00
28.00
32.00
36.00
40.00
44.00
48.00
52.00
PNFCOR
20.00
40.00
60.00
80.00
100.00
120.00
140.00

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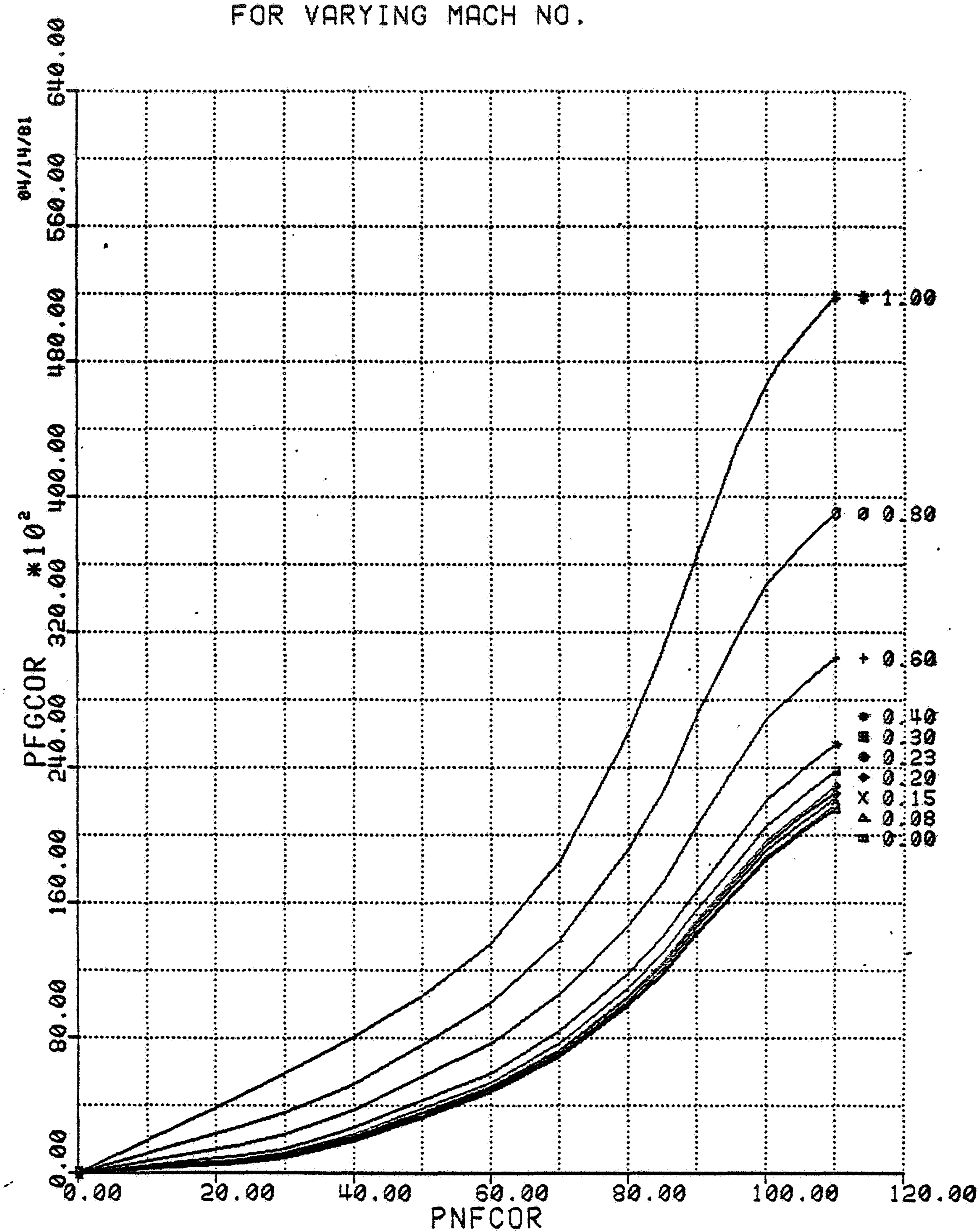
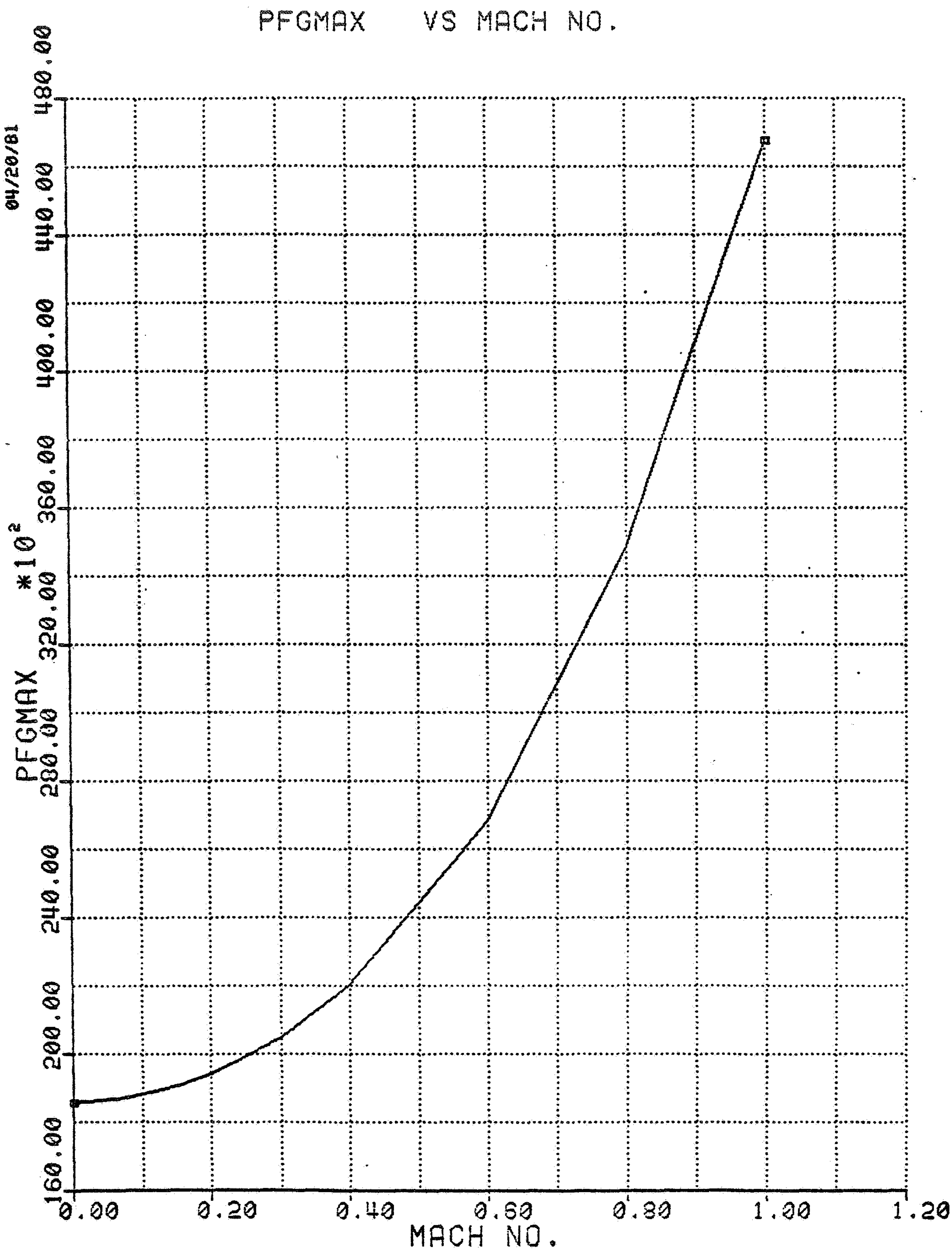
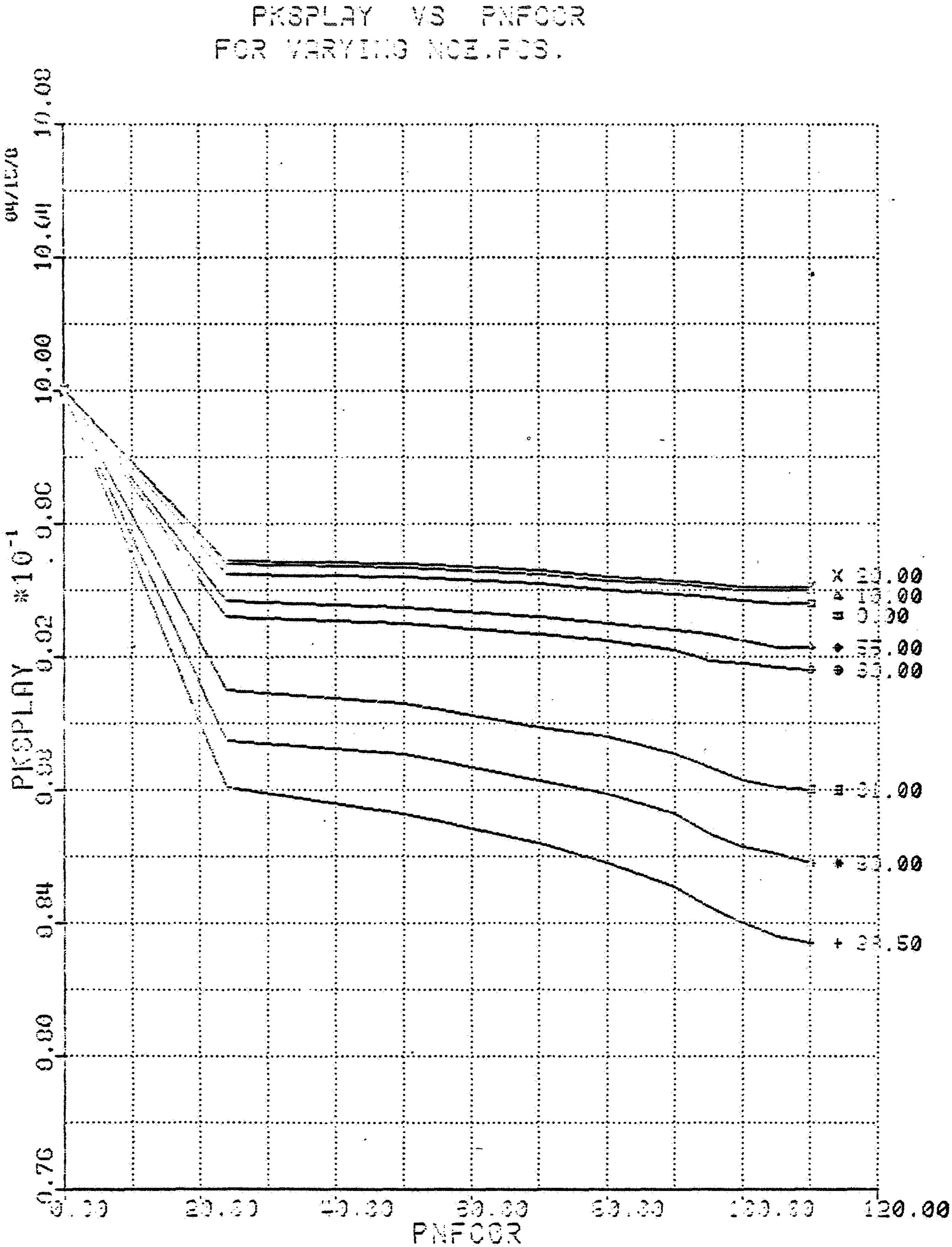
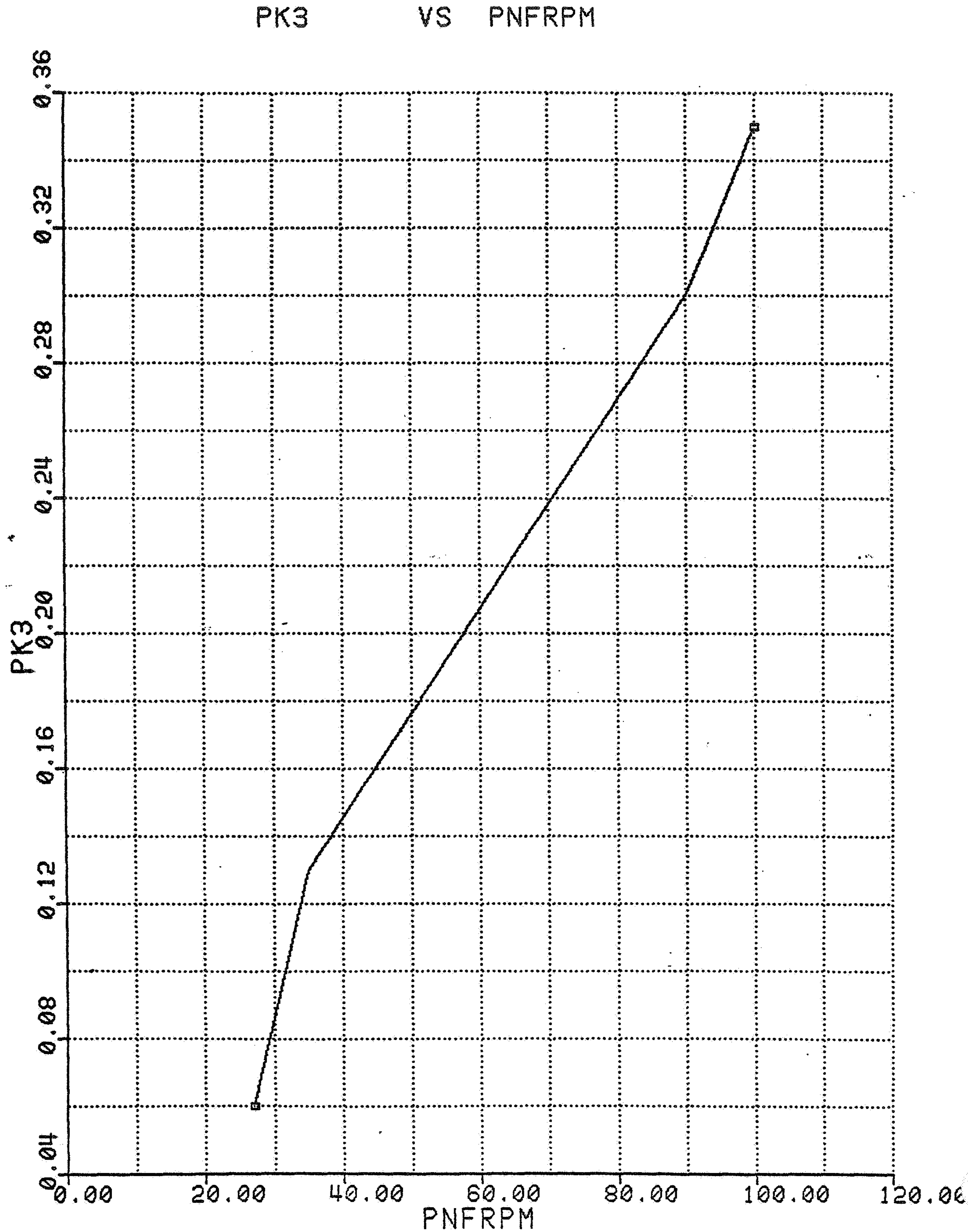
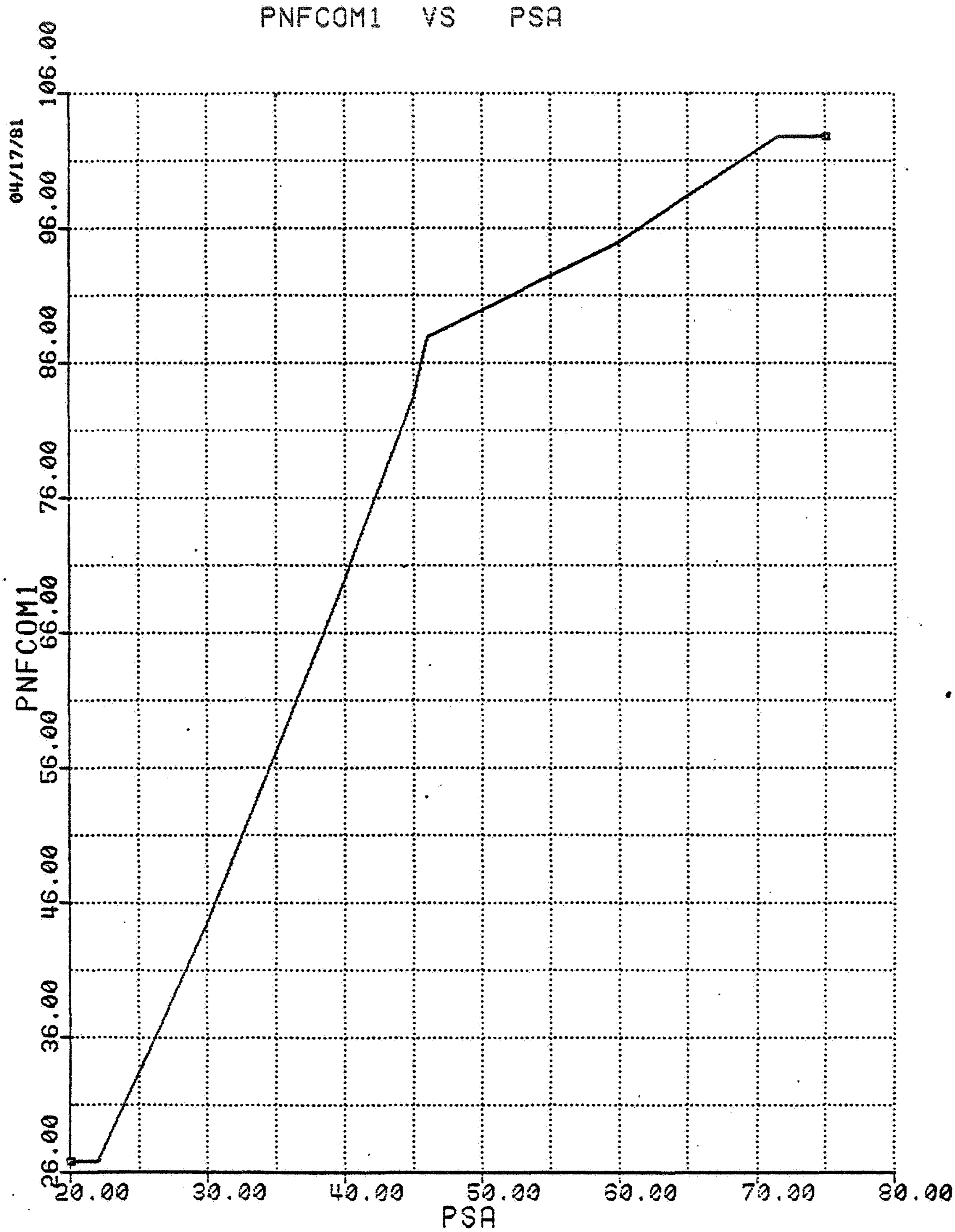
PFGCOR VS PNFCOR
FOR VARYING MACH NO.



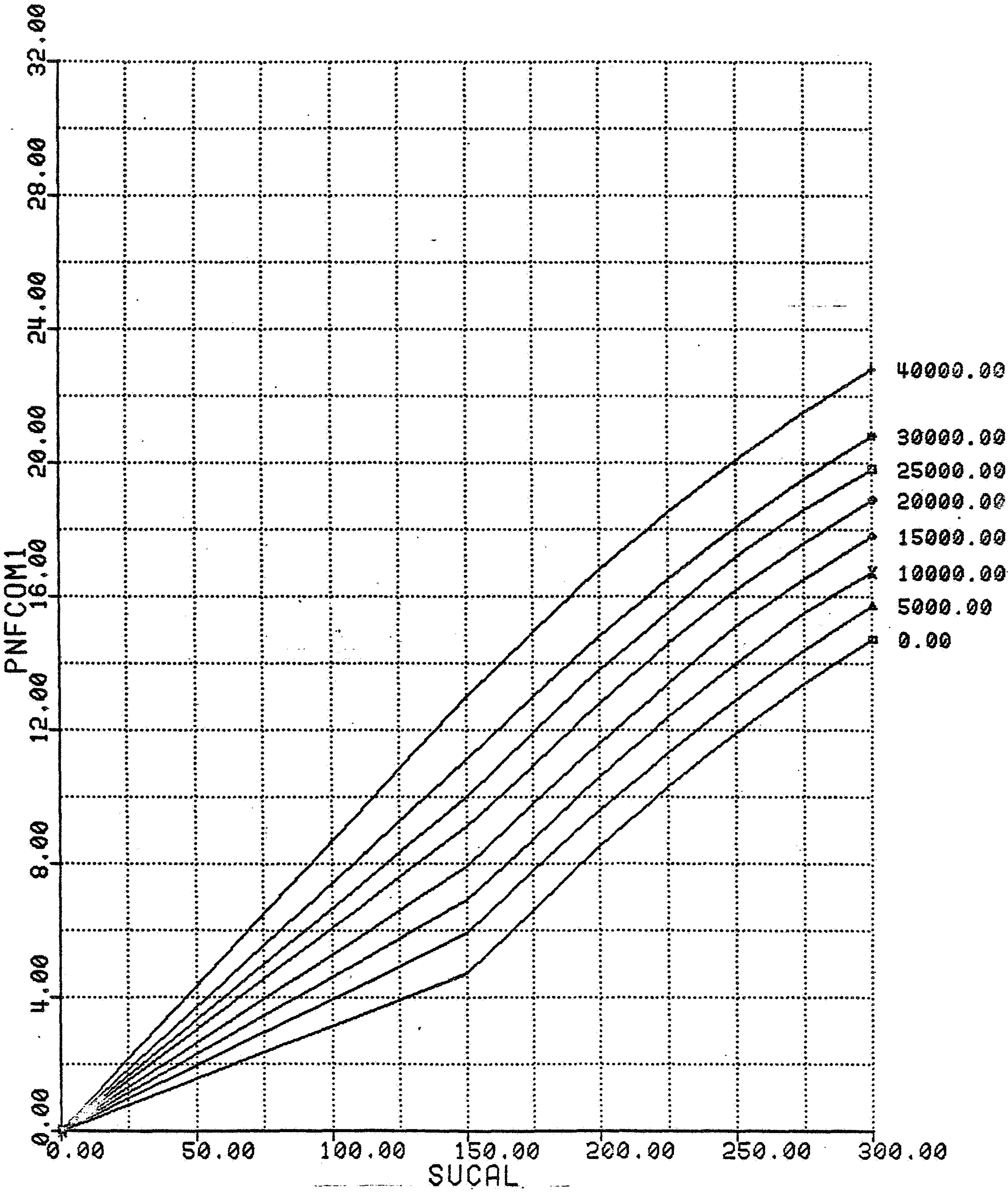

PFGMAX VS MACH NO.
04/20/81
PFGMAX *10²
480.00
440.00
400.00
360.00
320.00
280.00
240.00
200.00
160.00
0.00
0.20
0.40
0.60
0.80
1.00
1.20
MACH NO.


PKSPLAY VS PNFOOR
FOR VARYING NOZ.POS.
PKSPLAY *10^-1
PNFOOR
0.76
0.80
0.84
0.88
0.92
0.96
10.00
10.04
10.08
20.00
40.00
60.00
80.00
100.00
120.00
+ 38.50


PK3 VS PNFRPM
PK3
0.04
0.08
0.12
0.16
0.20
0.24
0.28
0.32
0.36
0.00
20.00
40.00
60.00
80.00
100.00
120.00
PNFRPM


PNFCOM1 VS PSA
04/17/81
PNFCOM1
PSA
106.00
96.00
86.00
76.00
66.00
56.00
46.00
36.00
26.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

PNFCOM1 VS SUCAL
FOR VARYING H



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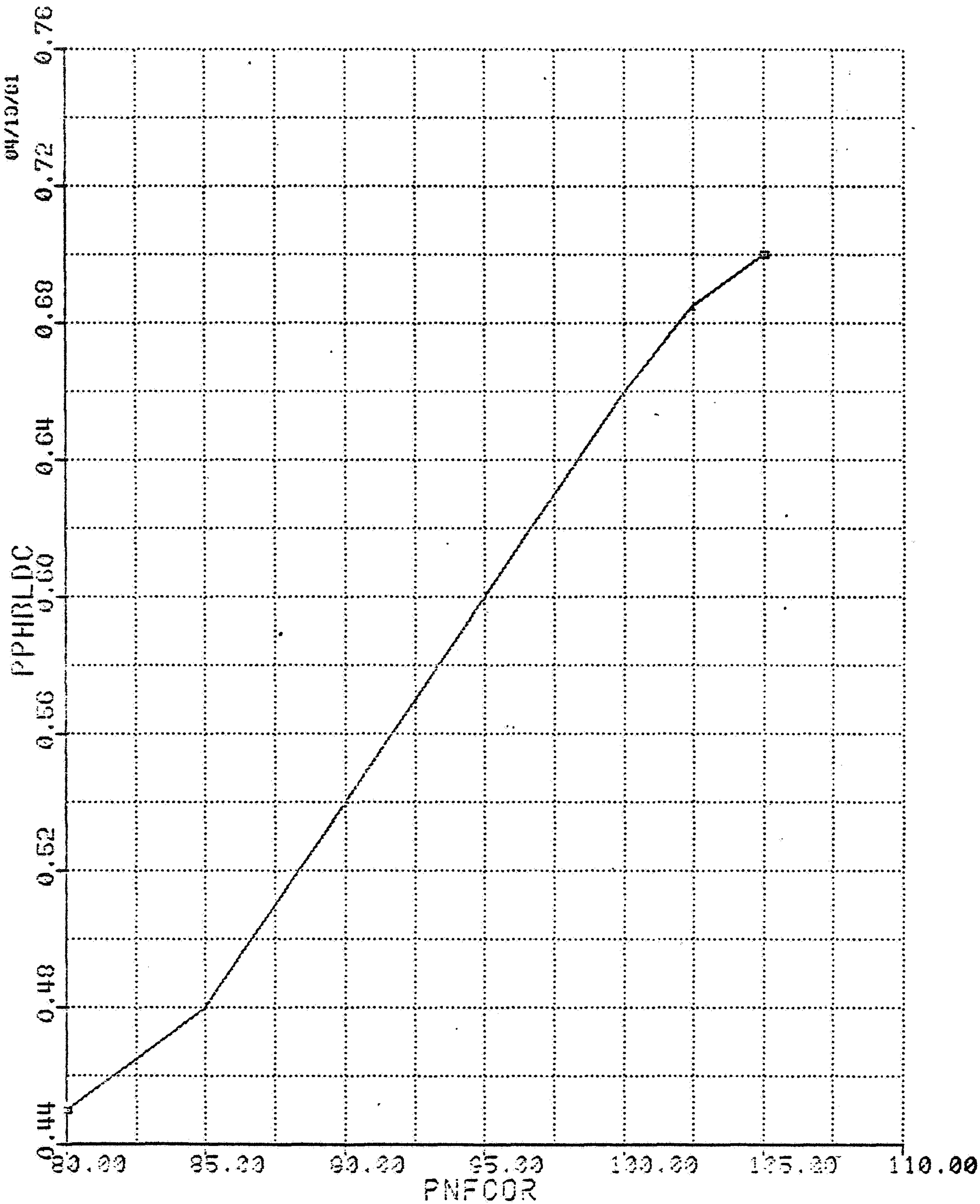
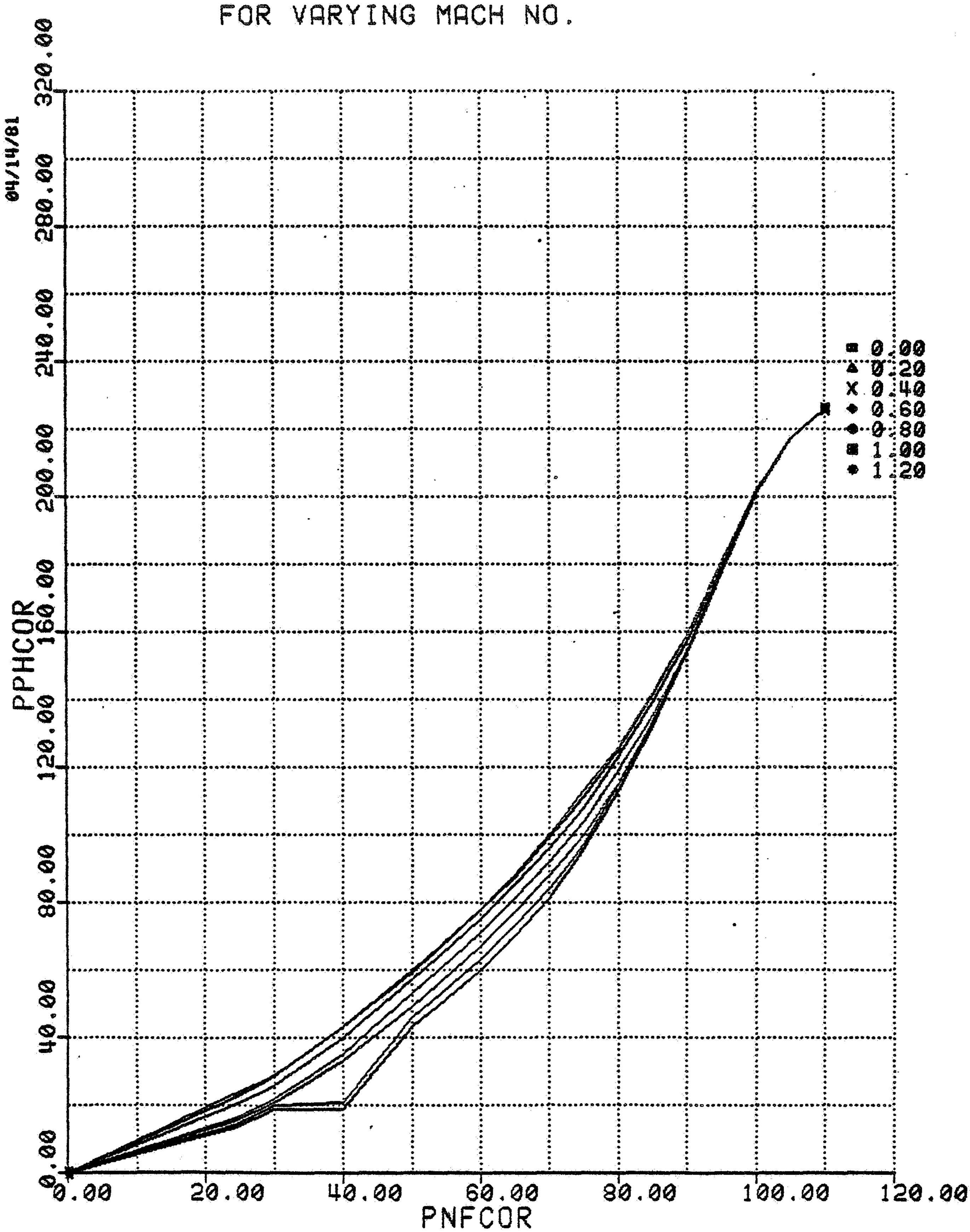
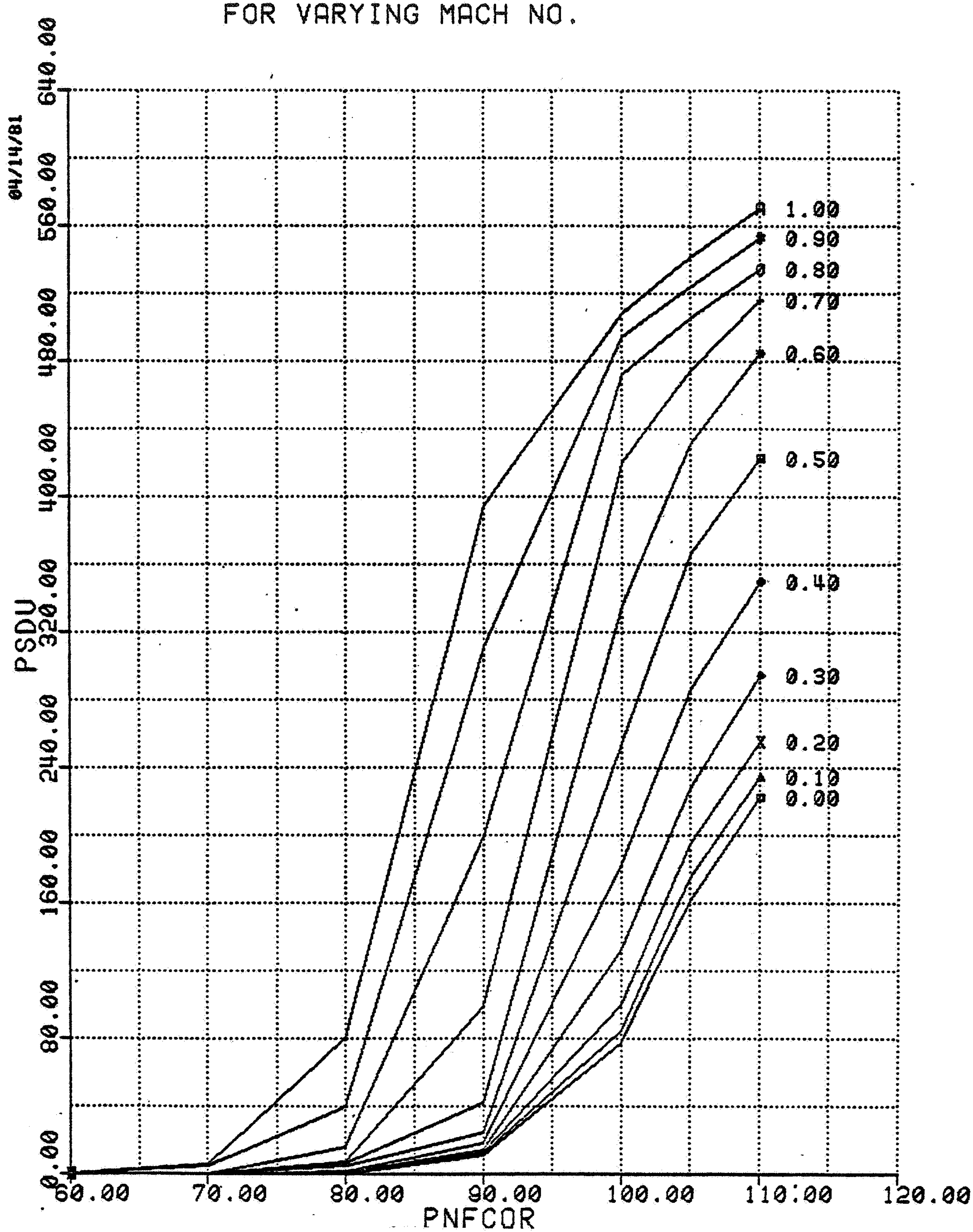
PPHBLDC VS PNFCOR



PPHCOR VS PNFCOR
FOR VARYING MACH NO.



PSDU VS PNFCOR
FOR VARYING MACH NO.



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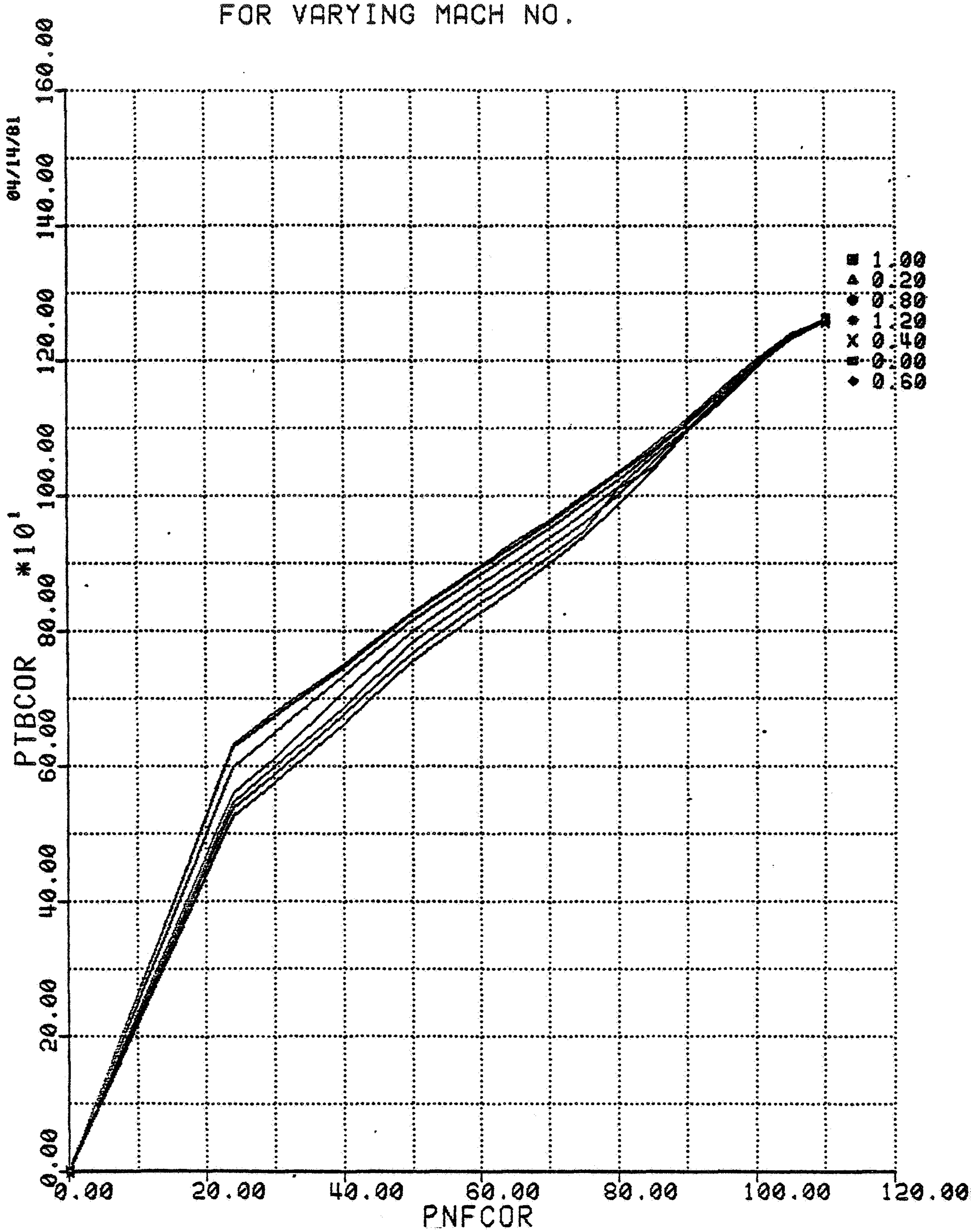
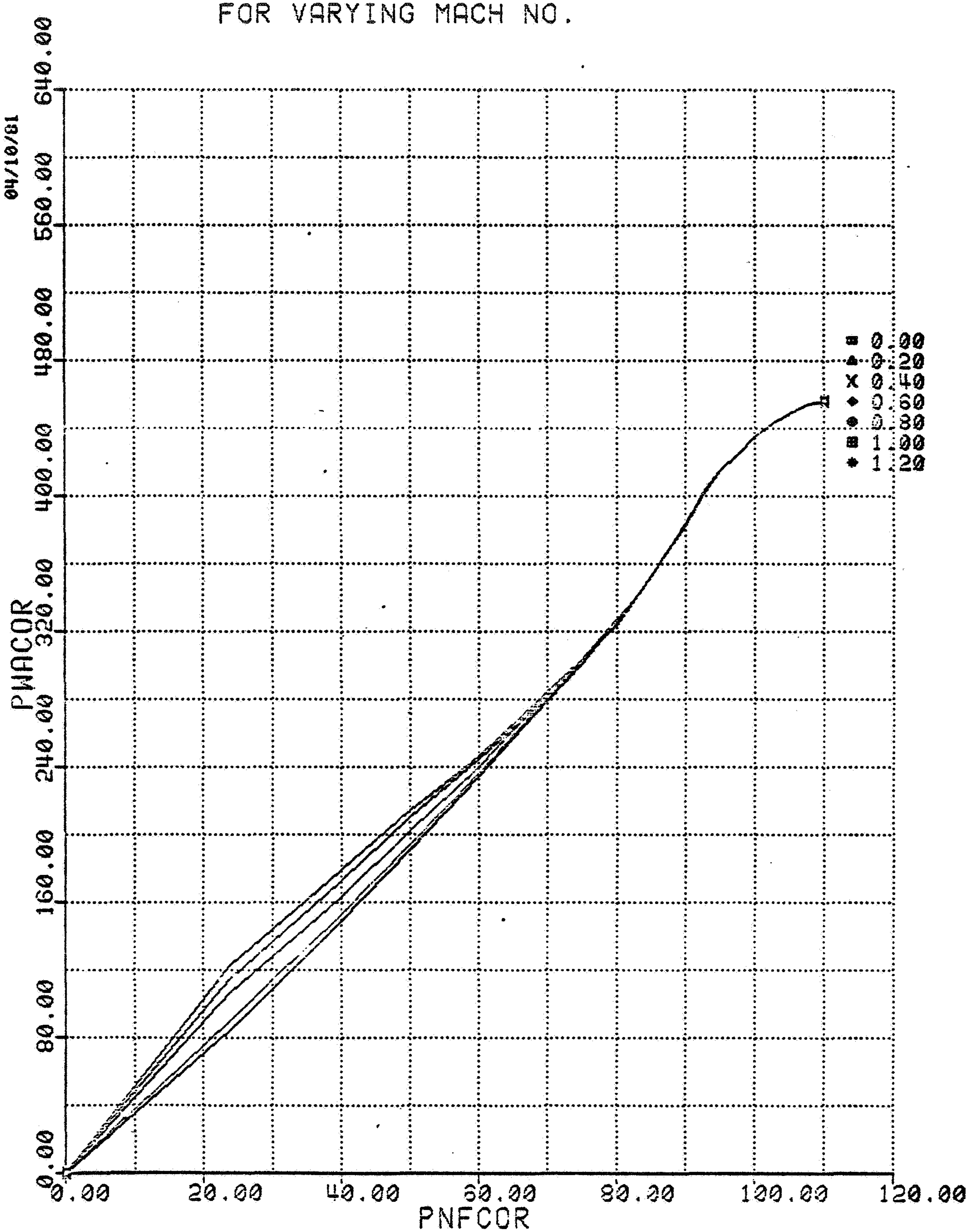
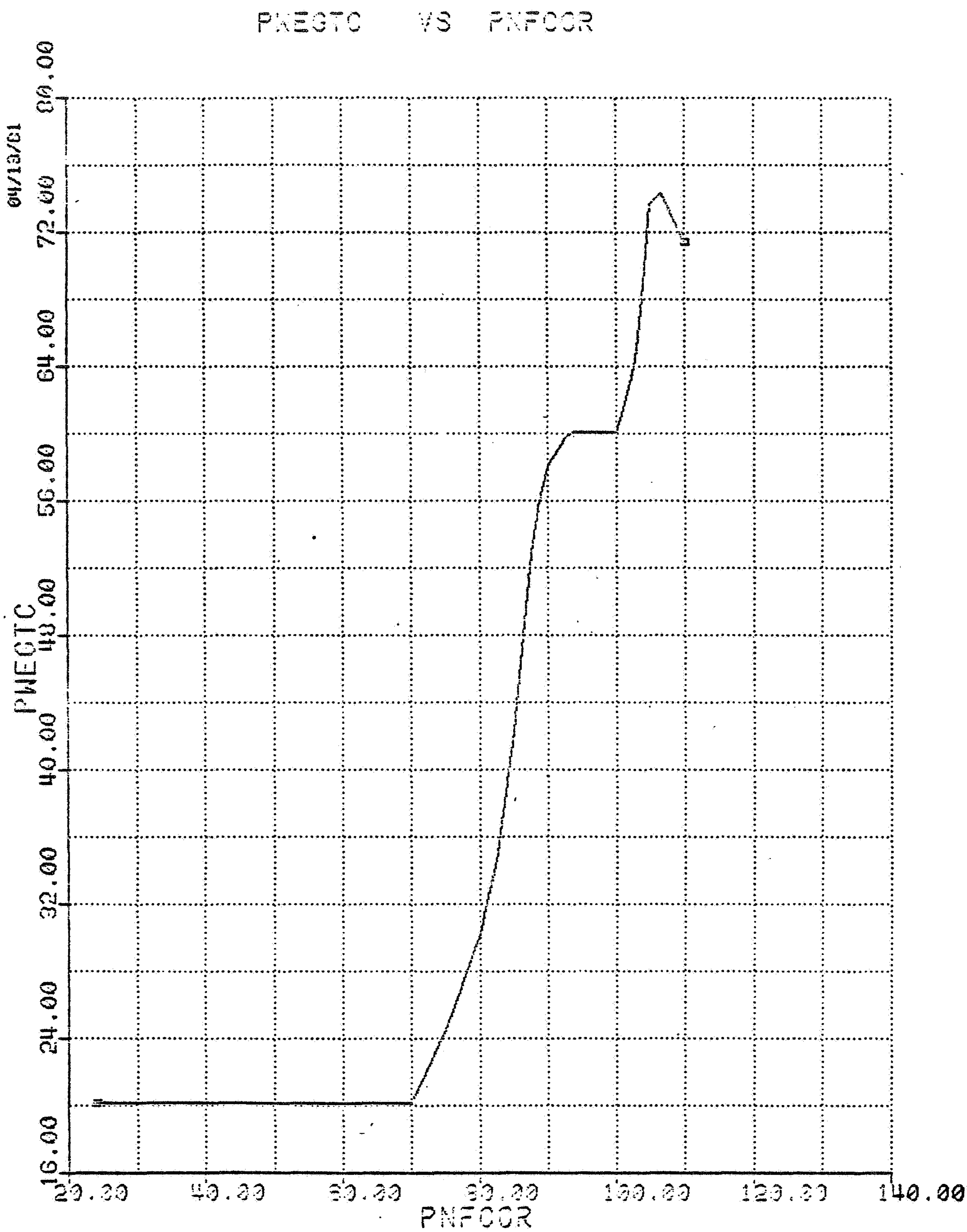
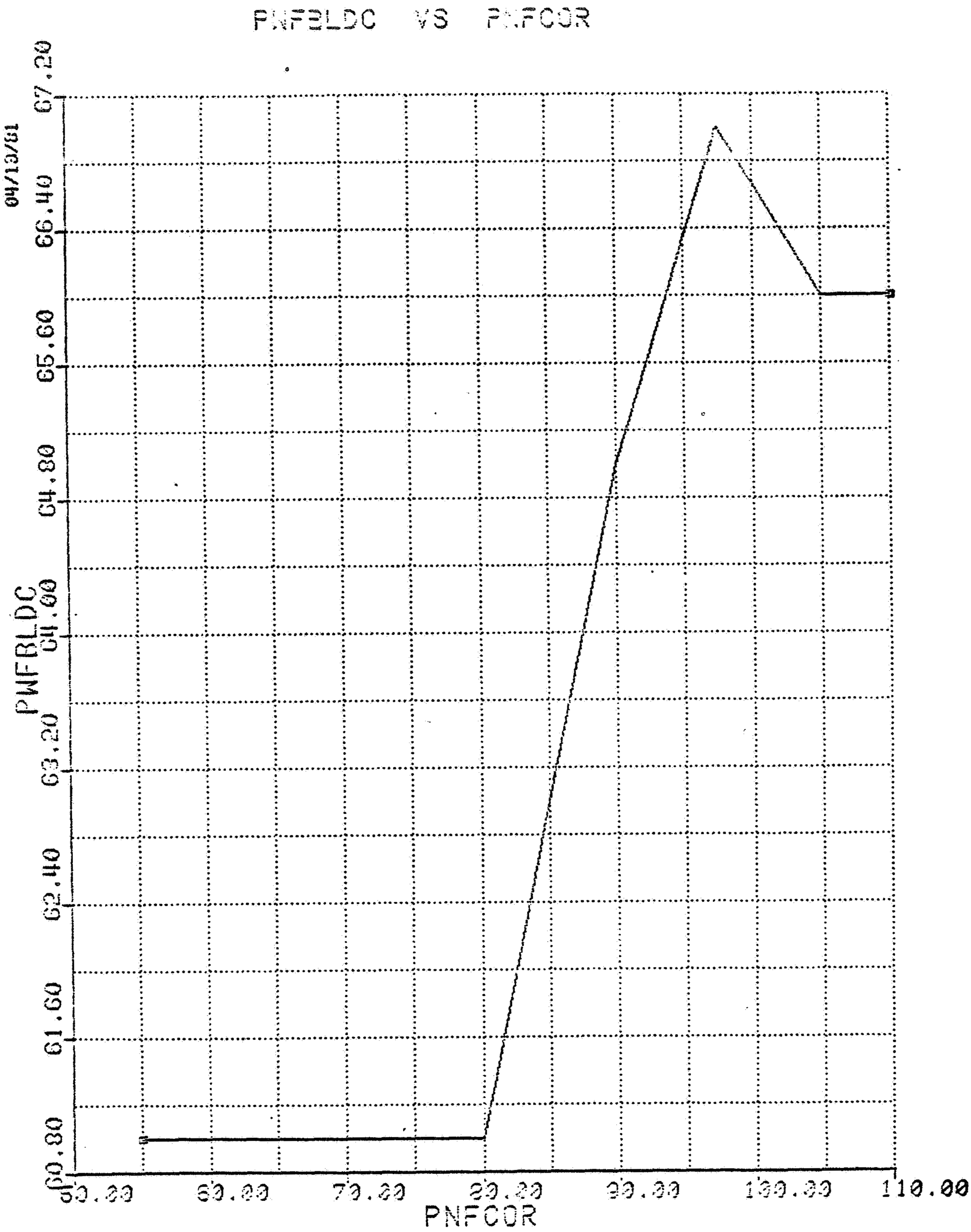
PTBCOR VS PNFCOR
FOR VARYING MACH NO.

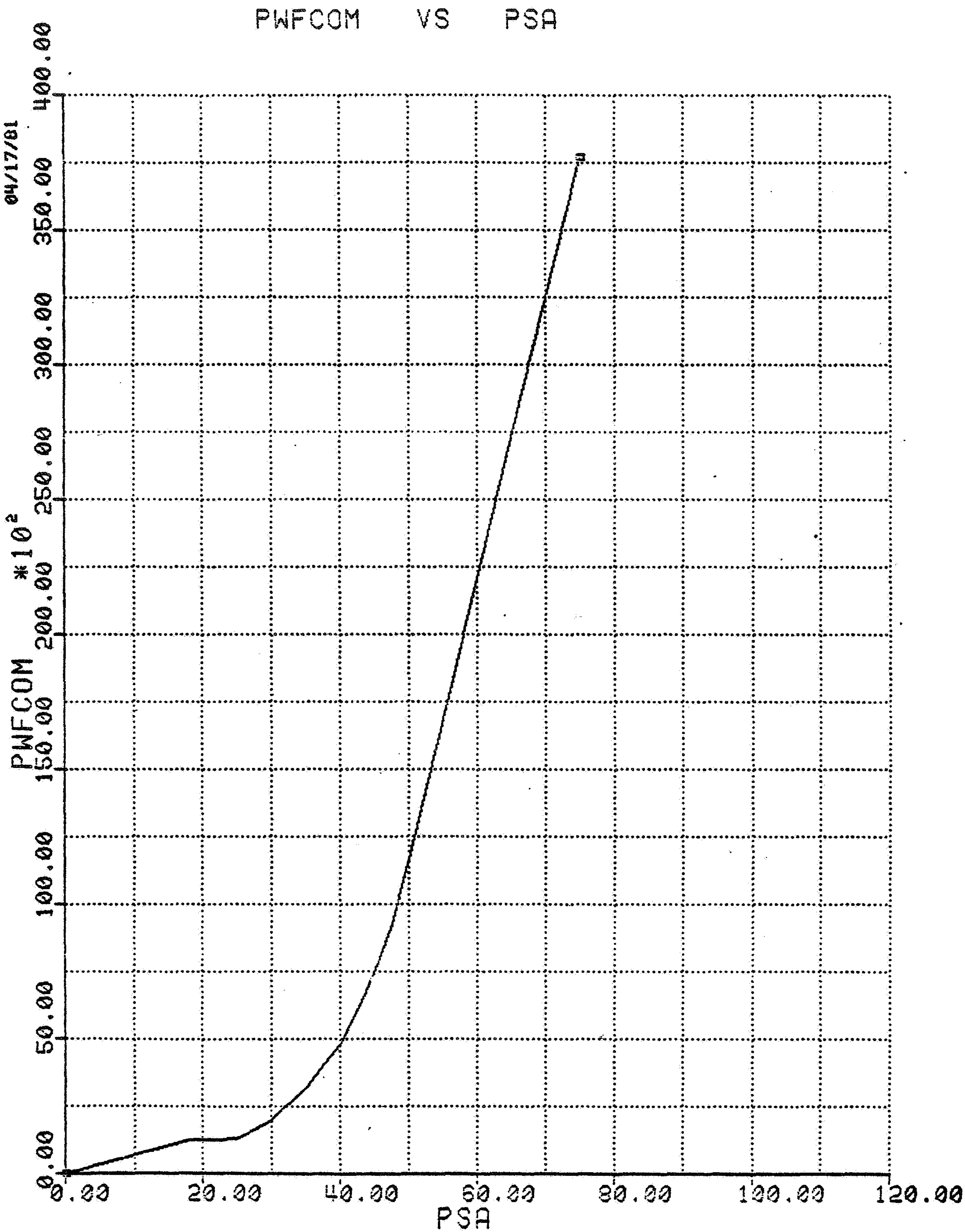


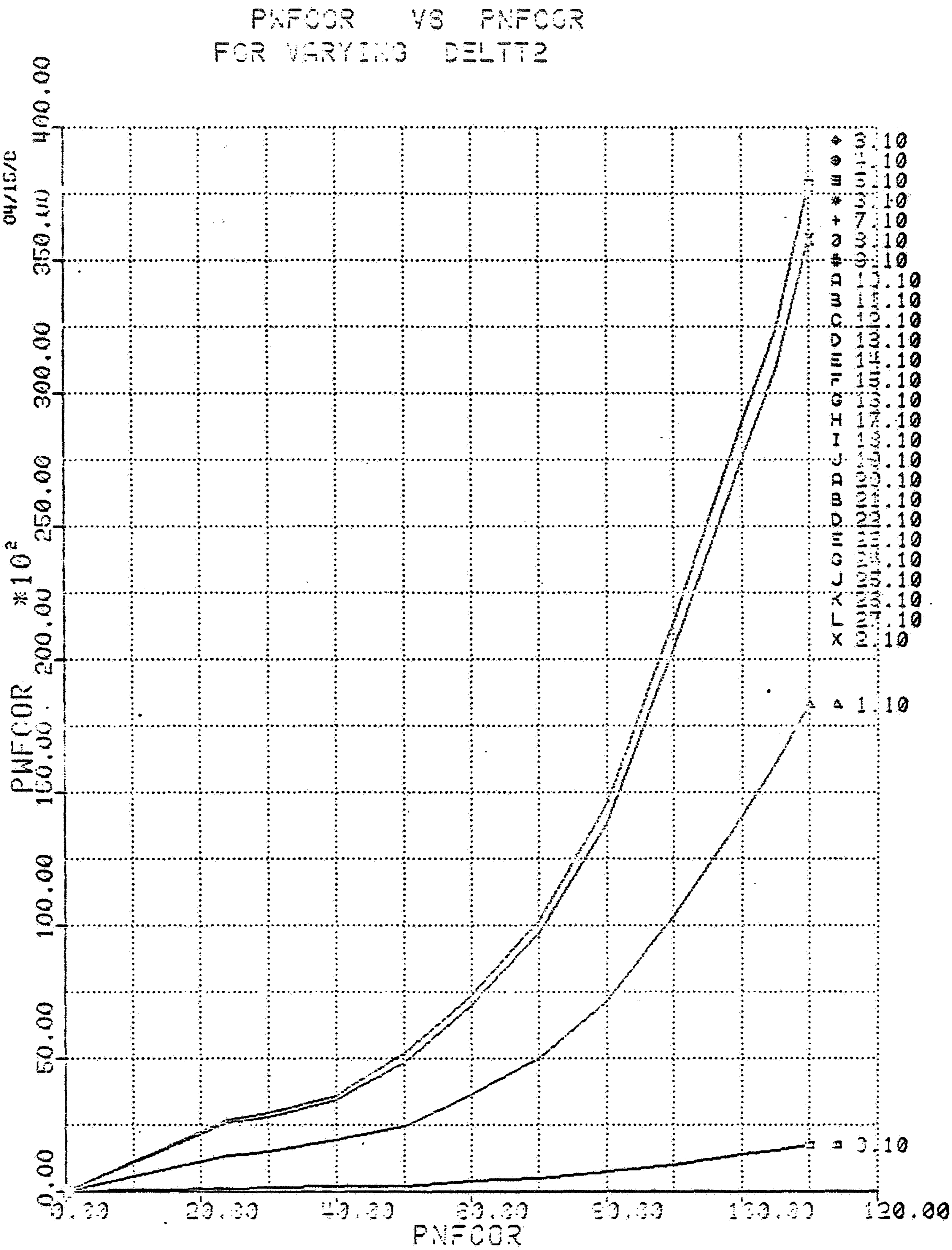
PWACOR VS PNFCOR
FOR VARYING MACH NO.




PWEGTC VS PNFCOR
04/13/81
80.00
72.00
64.00
56.00
48.00
40.00
32.00
24.00
16.00
PWEGTC
20.00
40.00
60.00
80.00
100.00
120.00
140.00
PNFCOR


PNFBLDC VS PNFCOR
04/13/81
67.20
66.40
65.60
64.80
64.00
63.20
62.40
61.60
60.80
PNFBLDC
50.00
60.00
70.00
80.00
90.00
100.00
110.00
PNFCOR


PWFCOM VS PSA
04/17/81
PWFCOM *10²
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
PSA


PWFCOR VS PNFCOR
FOR VARYING DELTT2
PWFCOR *10²
PNFCOR
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
20.00
40.00
60.00
80.00
100.00
120.00
1.10
0.10

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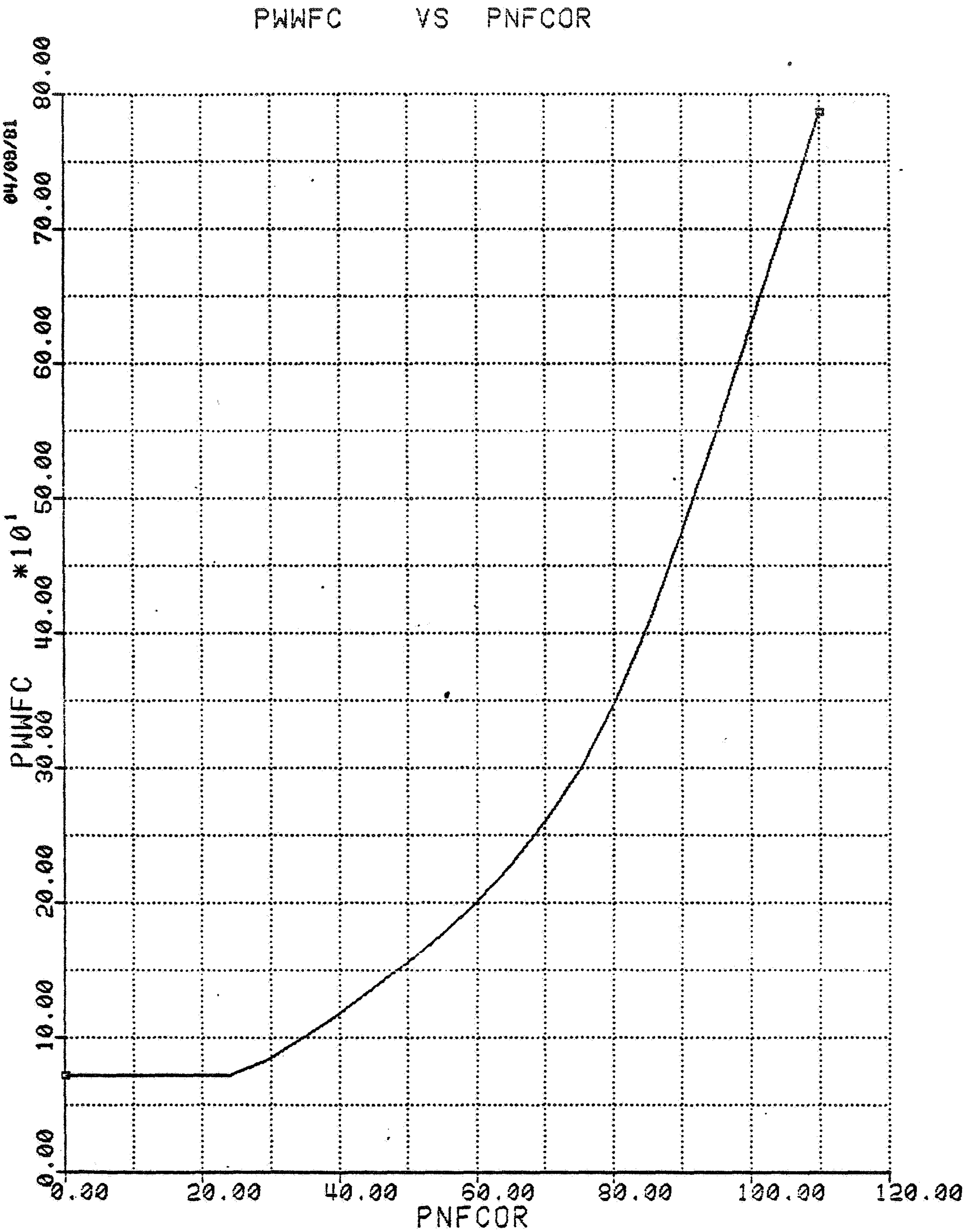
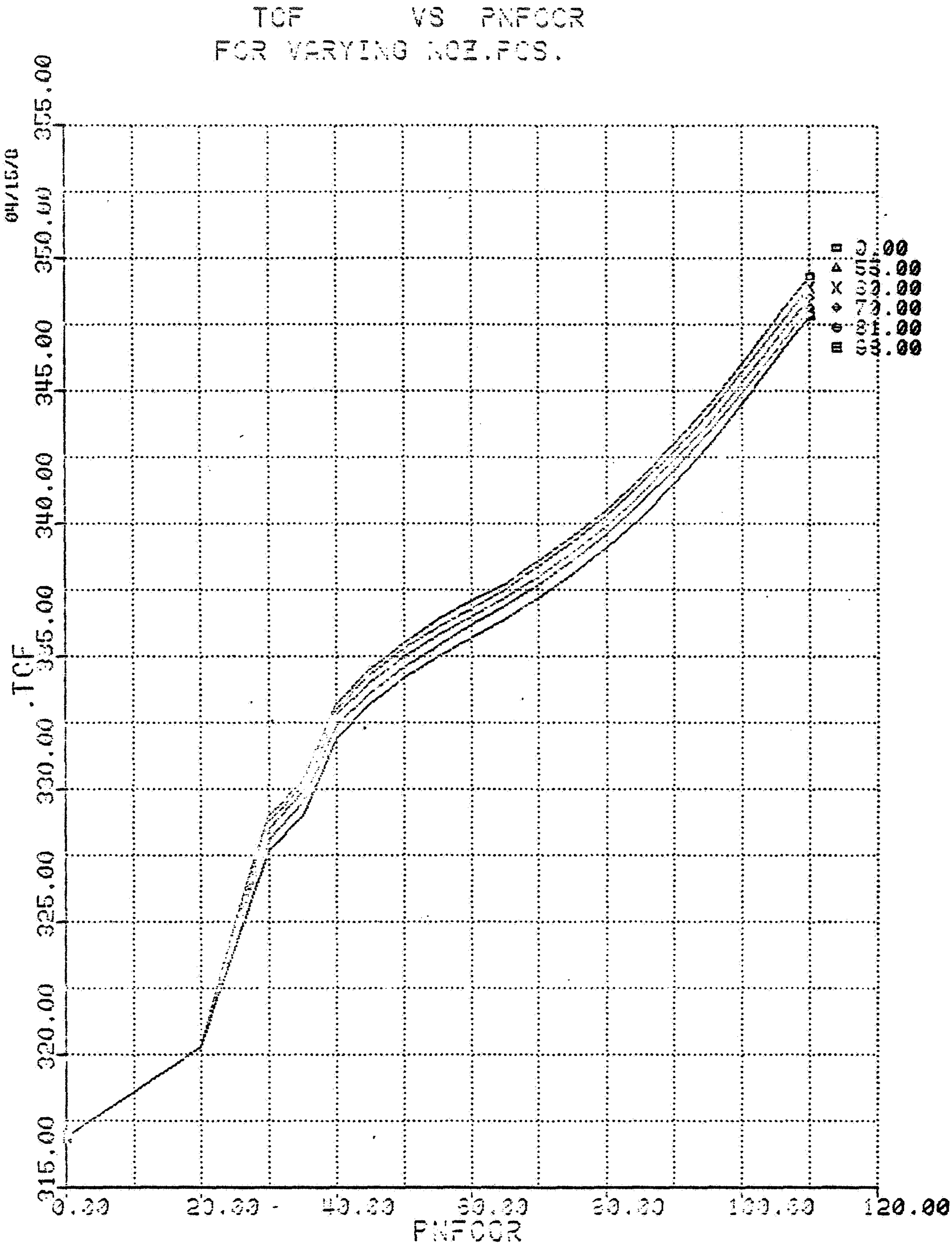
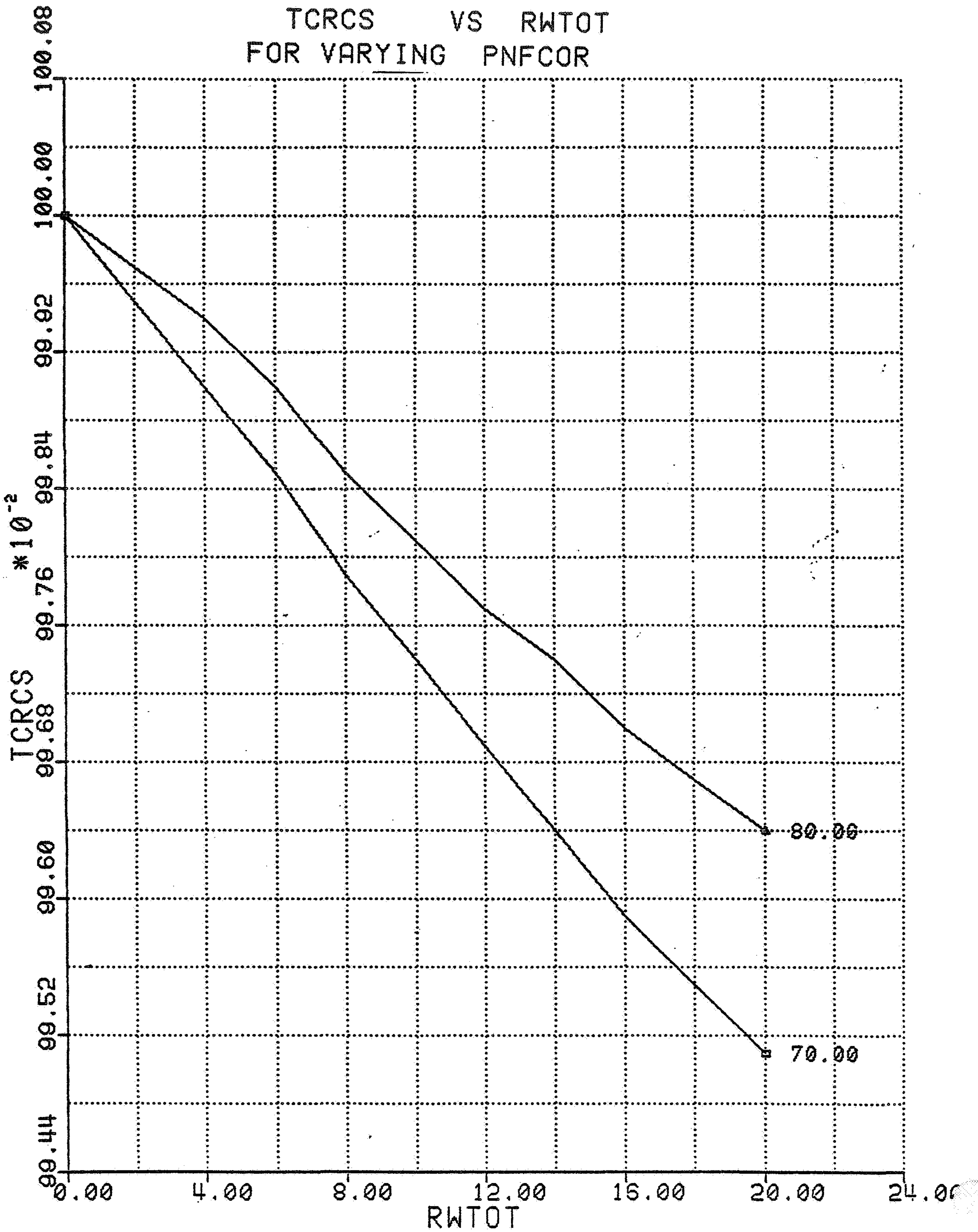
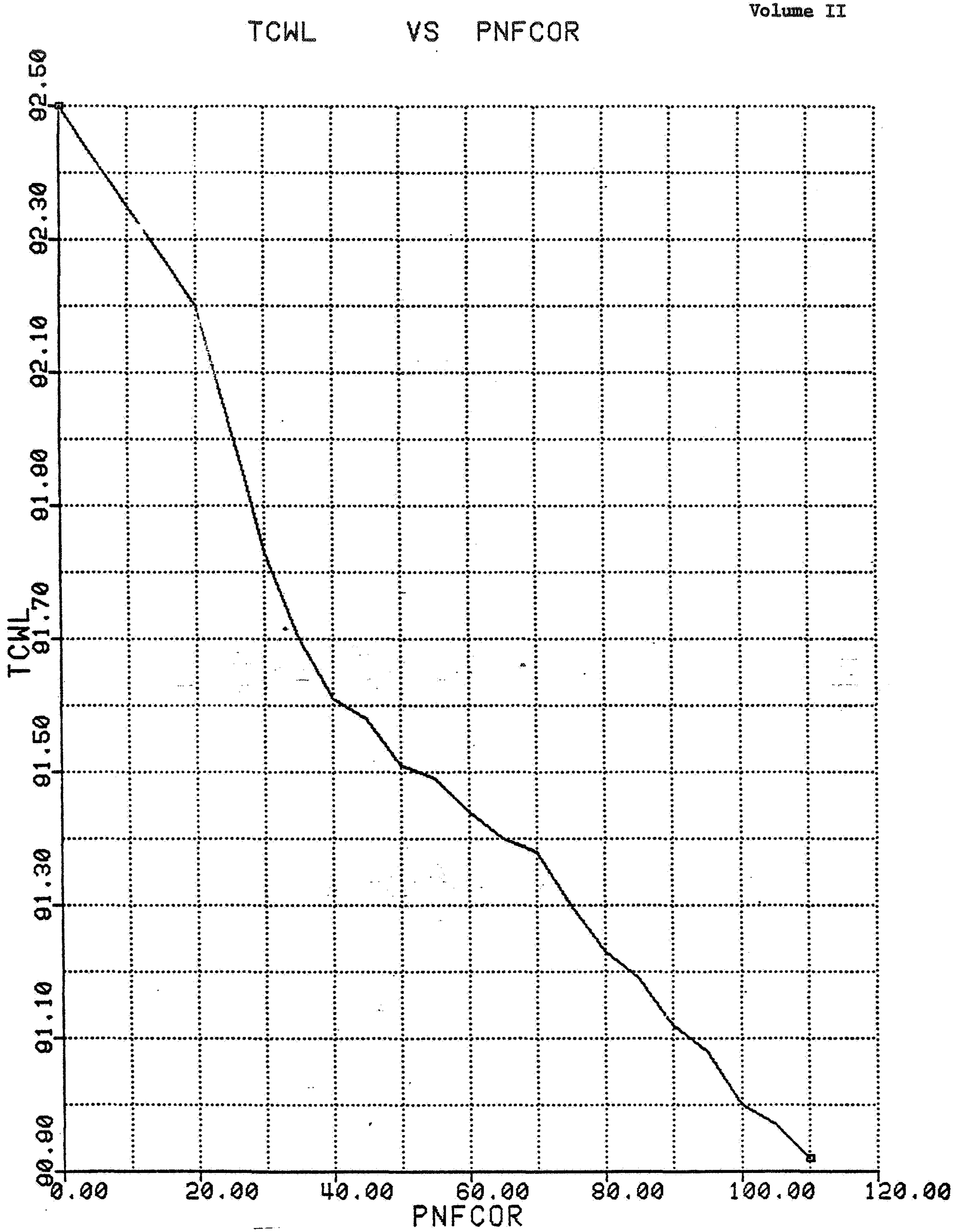
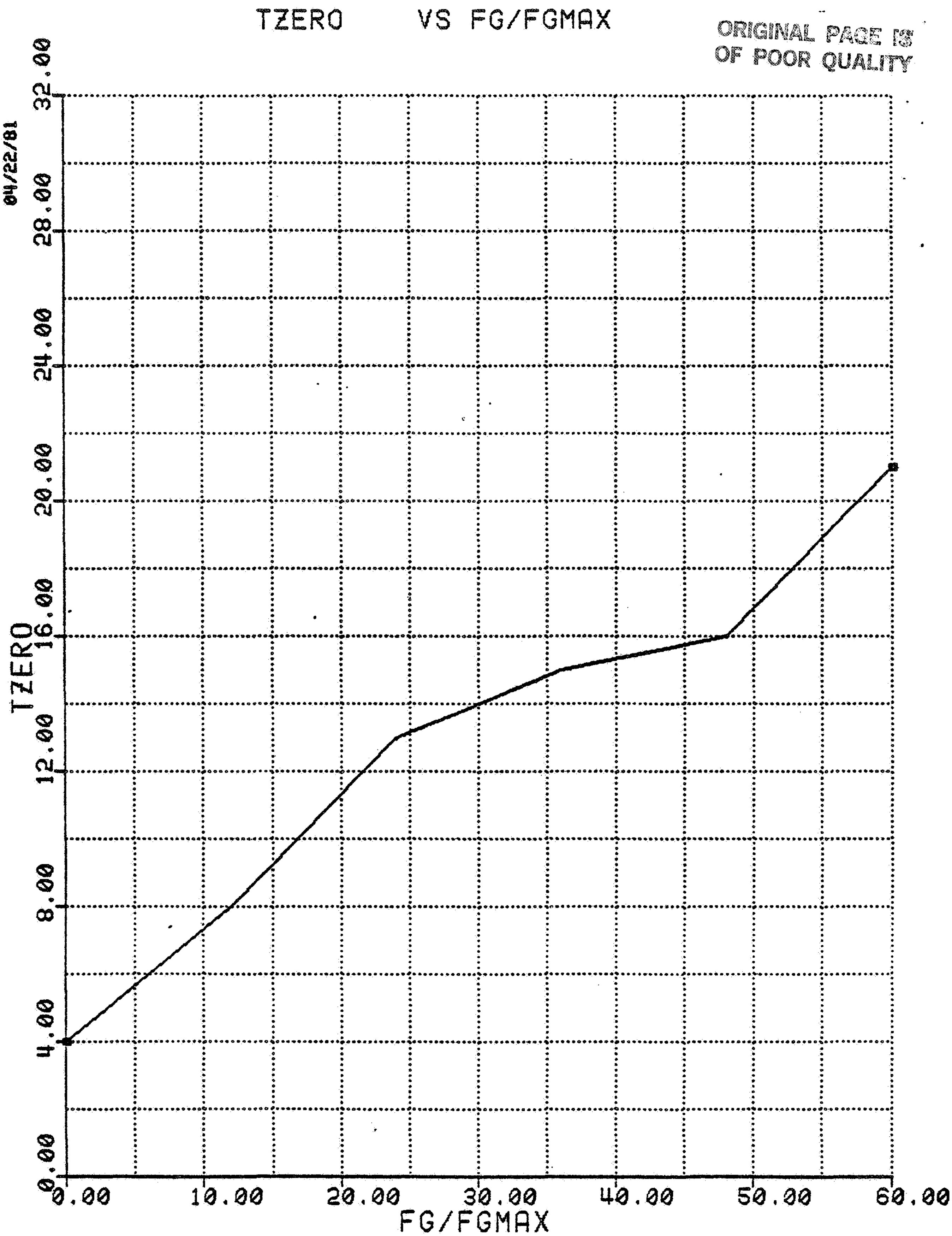
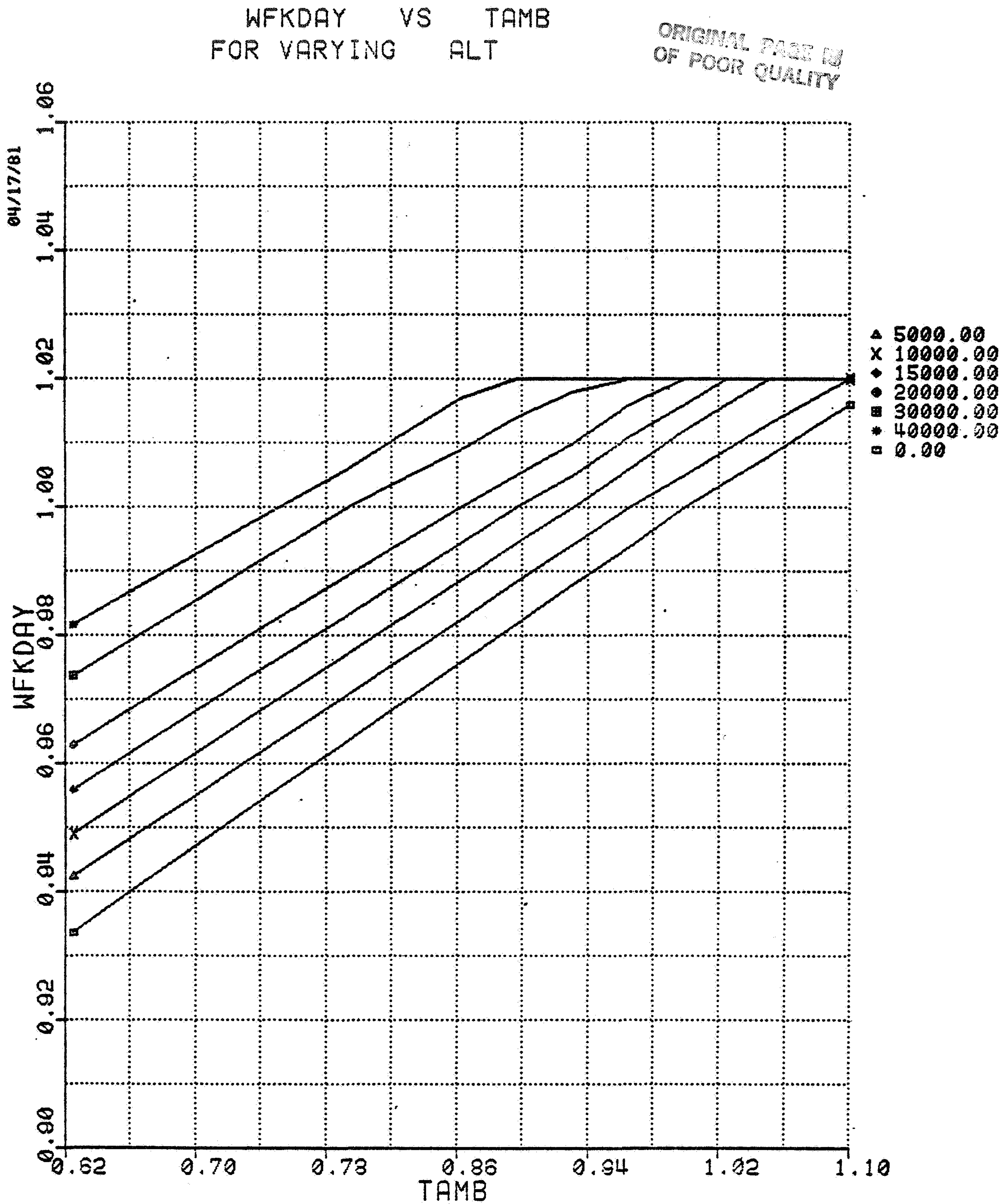



TCF VS PNFOCR
FOR VARYING NOZ.POS.
04/15/8
355.00
350.00
345.00
340.00
335.00
330.00
325.00
320.00
315.00
TCF
0.00
20.00
40.00
60.00
80.00
100.00
120.00
PNFOCR


TCRCS VS RWTOT
FOR VARYING PNFCOR
TCRCS *10^-2
100.08
100.00
99.92
99.84
99.76
99.68
99.60
99.52
99.44
0.00
4.00
8.00
12.00
16.00
20.00
24.00
RWTOT
80.00
70.00


TCWL VS PNFCOR
TCWL
PNFCOR
92.50
92.30
92.10
91.90
91.70
91.50
91.30
91.10
90.90
0.00
20.00
40.00
60.00
80.00
100.00
120.00


TZERO VS FG/FGMAX
04/22/81
TZERO
0.00
4.00
8.00
12.00
16.00
20.00
24.00
28.00
32.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
FG/FGMAX


WFKDAY VS TAMB
FOR VARYING ALT
04/17/81
WFKDAY
TAMB
0.90
0.92
0.94
0.96
0.98
1.00
1.02
1.04
1.06
0.62
0.70
0.78
0.86
0.94
1.02
1.10
5000.00
10000.00
15000.00
20000.00
30000.00
40000.00
0.00

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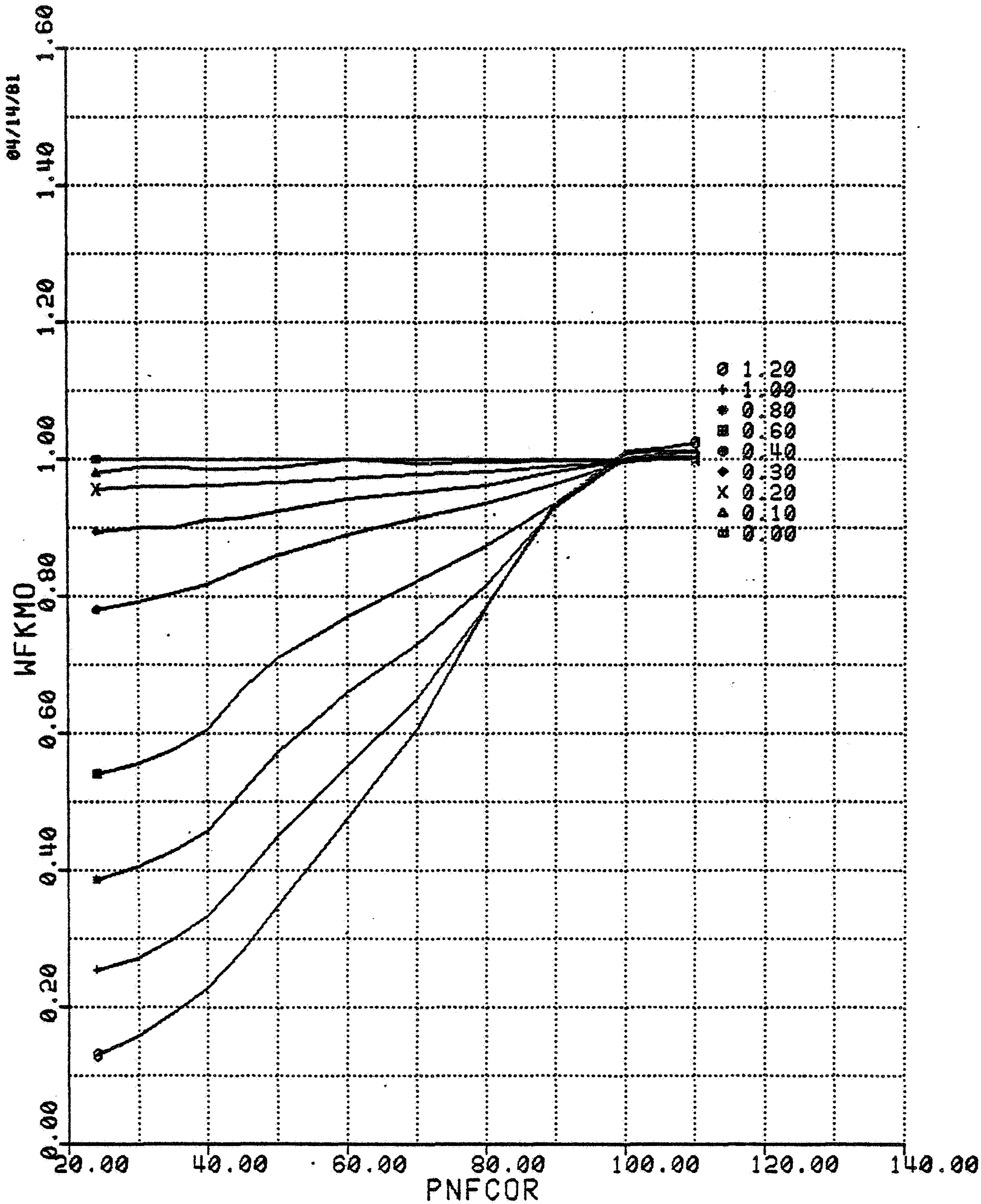
WFKMO VS PNFCOR
FOR VARYING MACH NO.



INDEX TO LOW SPEED AERODYNAMIC PLOTS

DEPENDENT VARIABLE	DEFINITION	DATA TABLE NAME	PAGE
BETAK06	Side force and yawing moment criteria due to phi break lines as a function of VET, altitude and K factor; nozzles = 60 deg	YMSF60U	C-43
BETAK08	Side force and yawing moment criteria due to phi break lines as a function of VET, altitude, and K factor; nozzles = 81 deg	YMSF81U	C-44
CAAILL	Increment of axial force coefficient due to aileron as a function of aileron deflection and alpha	CAAILT	C-45
CABASE	Baseline axial force coefficient as a function of alpha	CABAS1T	C-46
CABASE2	Baseline axial force coefficient as a function of alpha; high alpha	CABAS2T	C-47
CAFLAPL	Increment of axial force coefficient due to flap as a function of alpha and flap deflection	CAFLAPT	C-48
CAGE55	Increment of axial force coefficient due to ground effects as a function of THALP, altitude and VEQ; nozzles = 55 deg	CAGE55T	C-49
CAGE81	Increment of axial force coefficient due to ground effects as a function of THALP and altitude; nozzle $\geq$ 81 deg	CAGE81T	C-53
CA10	Increment of axial force coefficient due to power effects as a function of alpha, VEQ, and THETAJ = 0, 10 deg	CAPOWT	C-54
CA55	Increment of axial force coefficient due to power effects as a function of alpha, VEQ, and THETAJ = 55 deg	CA55T	C-56
CLLAILL	Increment of rolling moment coefficient due to aileron as a function of alpha and aileron deflection	CLLAILT	C-57
CLLBASE	Rolling moment coefficient due to sideslip angle as a function of alpha and flap deflection	CLLBAST	C-58

INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)

INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)

INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)

INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)

DEPENDENT VARIABLE	DEFINITION	DATA TABLE NAME	PAGE
DCLNHI	Yawing moment coefficient due to sideslip angle as a function of alpha for high beta	DCLNHIT	C-102
DCMFJI	Increment to CMJ25 as a function of alpha	DCMFJIT	C-103
DCML	Increment of pitching moment coefficient due to flaps as a function of alpha, VEQ, and flap deflection	DCMT	C-104
DCMPOW	Increment of pitching moment coefficient due to power effects as a function of alpha, VEQ, and THETAJ	DCMPOWT	C-107
DCM10	Increment of pitching moment coefficient due to ground effects as a function of THALP, altitude, and VET; nozzles = 10 deg	DCM10T	C-116
DCM50	Increment of pitching moment coefficient due to ground effects as a function of THALP and altitude; nozzle = 50 deg	DCM50T	C-118
DCM60	Increment of pitching moment coefficient due to ground effects as a function of THALP and altitude; nozzle = 60 deg	DCM60T	C-119
DCNJ25	Increment of normal force coefficient due to flap-jet interference as a function of ALPC and VEQ, flaps $\leq$ 25 deg	CNFJIT	C-120
DCNJ45	Increment of normal force coefficient due to flap-jet interference as a function of THETAJ; flaps < 61 deg	CNFJI1T	C-121
DCNJ62	Increment of normal force coefficient due to flap-jet interference as a function of THETAJ; flaps $\geq$ 61.7 deg	CNFJI2T	C-122
DCNPOT	Increment of normal force coefficient due to power effects as a function of THETAJ and alpha; VEQ < .05	DCNPOWT	C-123

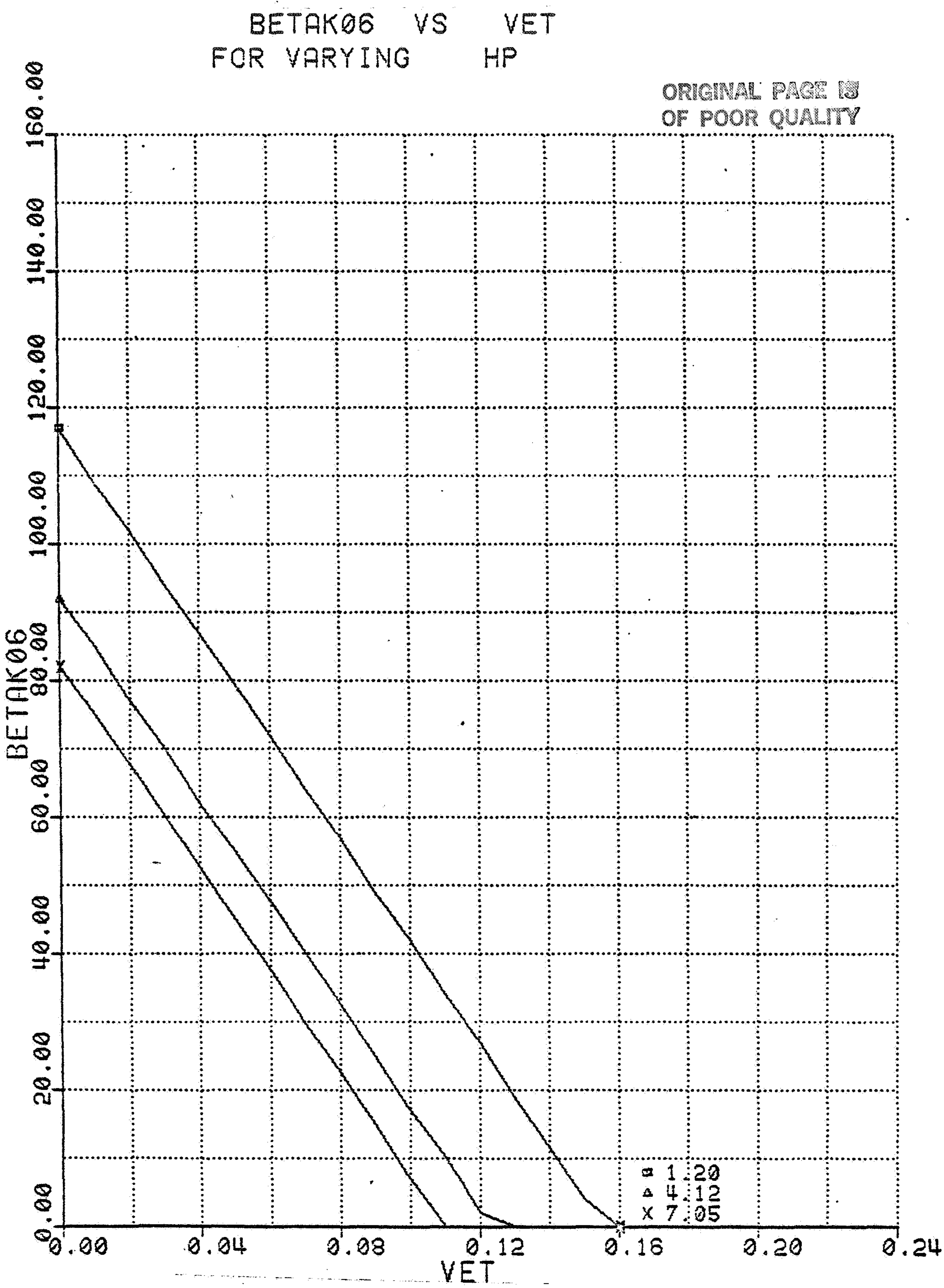
INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)

INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)

DEPENDENT VARIABLE	DEFINITION	DATA TABLE NAME	PAGE
PBYM60	Phi bias to yawing moment as a function of ABETAP, altitude, and VET; nozzles = 60 deg	PBYM60U	C-156
PBYM81	Phi bias to yawing moment as a function of ABETAP, altitude, and VET: nozzles = 81 deg	PBYM81U	C-158
RC	Correction factor to pitching moment coefficient as a function of alpha and VEQ	RCT	C-160
RCA	K Factor for delta correction to axial force coefficient as a function of VEQ	RCAT	C-161
RK	Correction factor to pitching moment coefficient due to stabilator for zero deg. flaps	RKT	C-162
RKO	Ground effect on longitudinal control power as a function of THALP	RKOT	C-162.1
RMBE00	Rolling moment out of ground effects as a function of THALP and VEQ; nozzles = 0 deg	RMBE00U	C-163
RMBE60	Rolling moment out of ground effects as a function of THALP and VEQ; nozzles = 60 deg	RMBE60U	C-164
RMBE81	Increment of rolling moment out of ground effects as a function of ABETAP, THALP, and VEQ: nozzles = 81 deg, VEQ = .025	RMBE81U	C-165
RMBE96	Increment of rolling moment out of ground effects as a function of ABETAP and THALP; nozzles = 81 deg, VEQ = .096	RMBE96U	C-168
RMGE00	Rolling moment in ground effects as a function of THALP, altitude, and VET; nozzles = 0 deg	RMGE00U	C-169
RMPB81	Lookup term for DRMP81 as a function of ABETAP, altitude, and VET; nozzles = 81 deg	RMPB81U	C-171

INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)

INDEX TO LOW SPEED AERODYNAMIC PLOTS (Cont'd)


BETAK06 VS VET
FOR VARYING HP
BETAK06
VET
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
0.00
0.04
0.08
0.12
0.16
0.20
0.24
1.20
4.12
X 7.05

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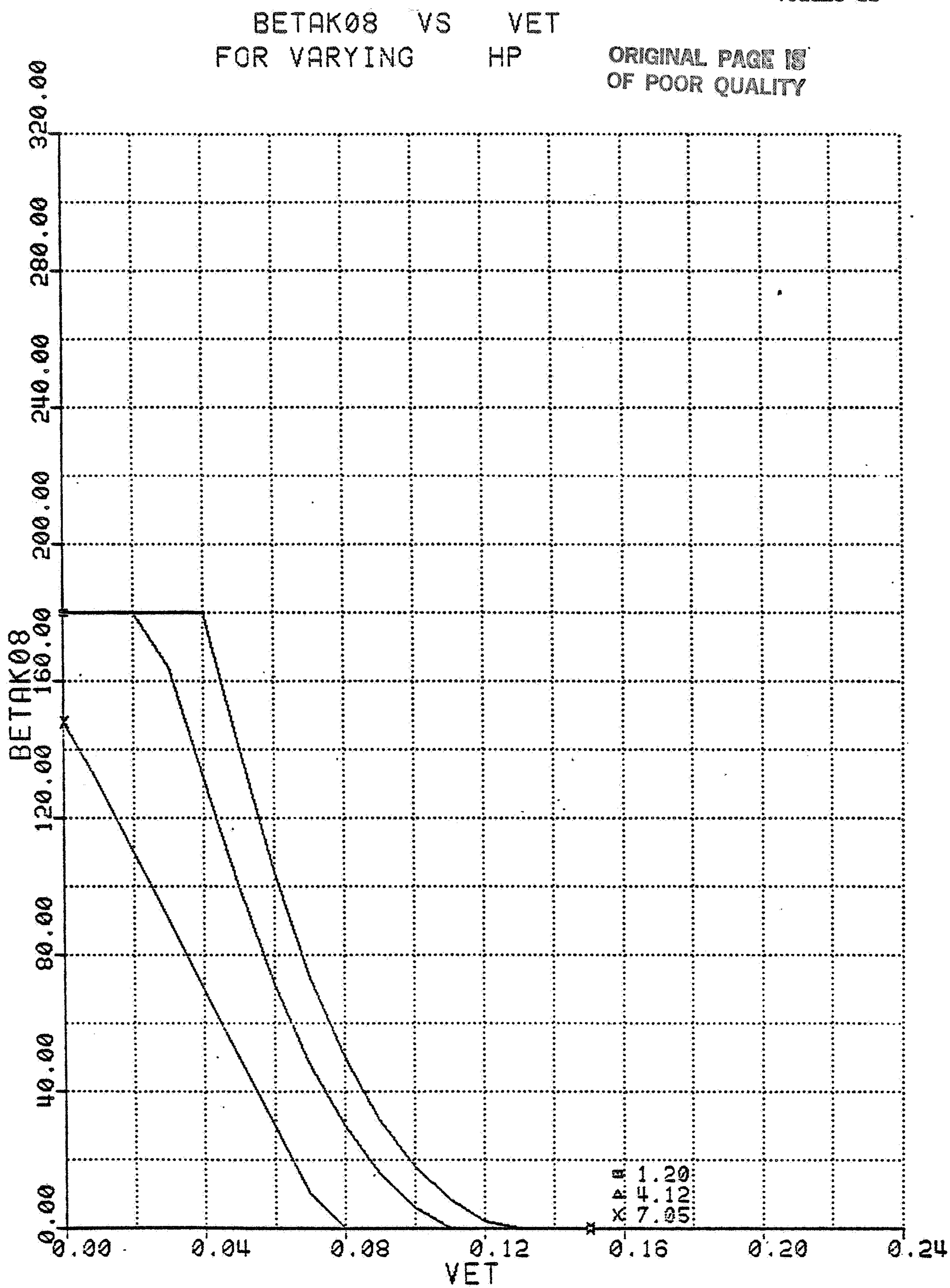

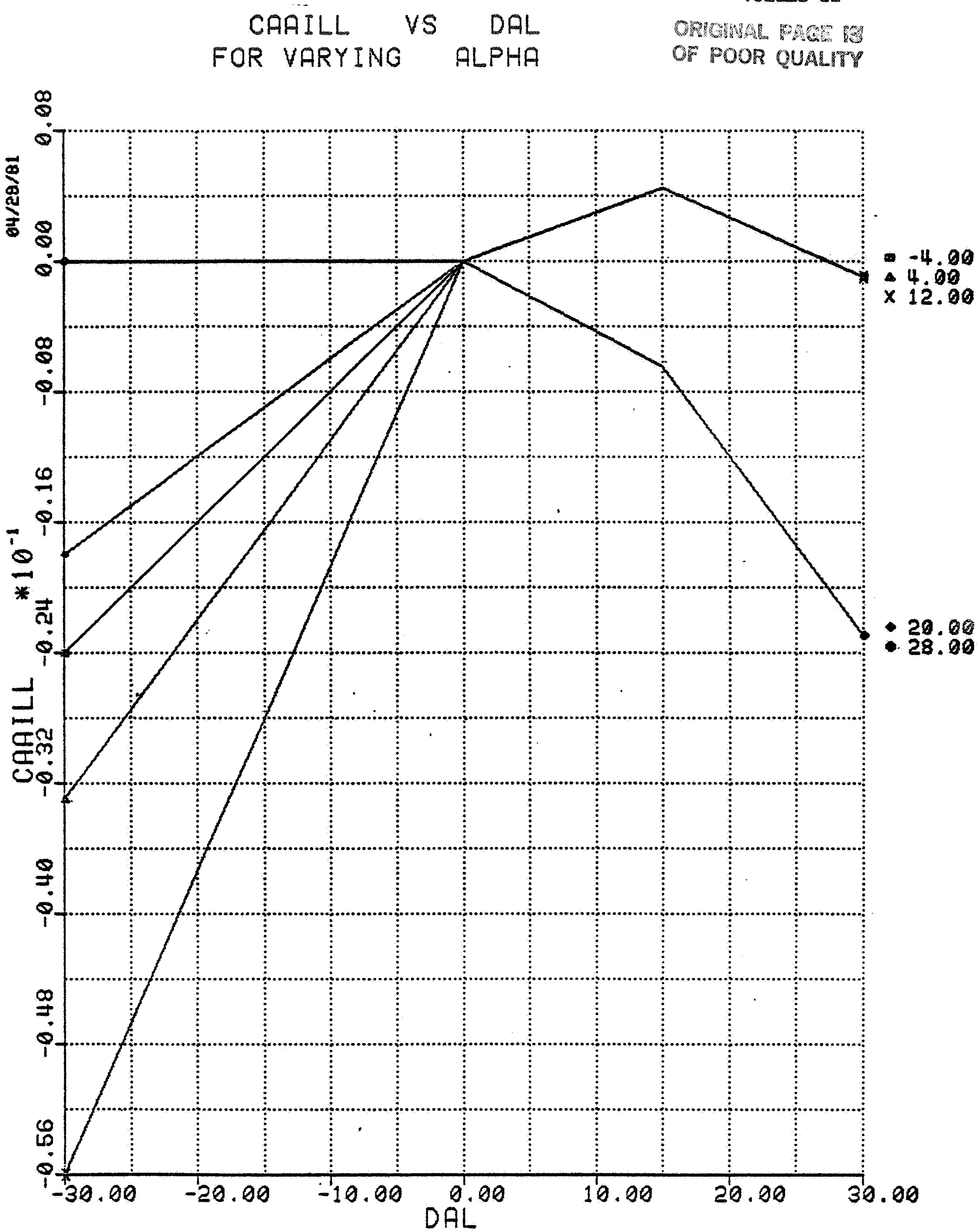
CAAILL VS DAL
FOR VARYING ALPHA
04/28/81
CAAILL *10⁻¹
0.08
0.00
-0.08
-0.16
-0.24
-0.32
-0.40
-0.48
-0.56
-30.00
-20.00
-10.00
0.00
10.00
20.00
30.00
DAL
-4.00
4.00
12.00
20.00
28.00

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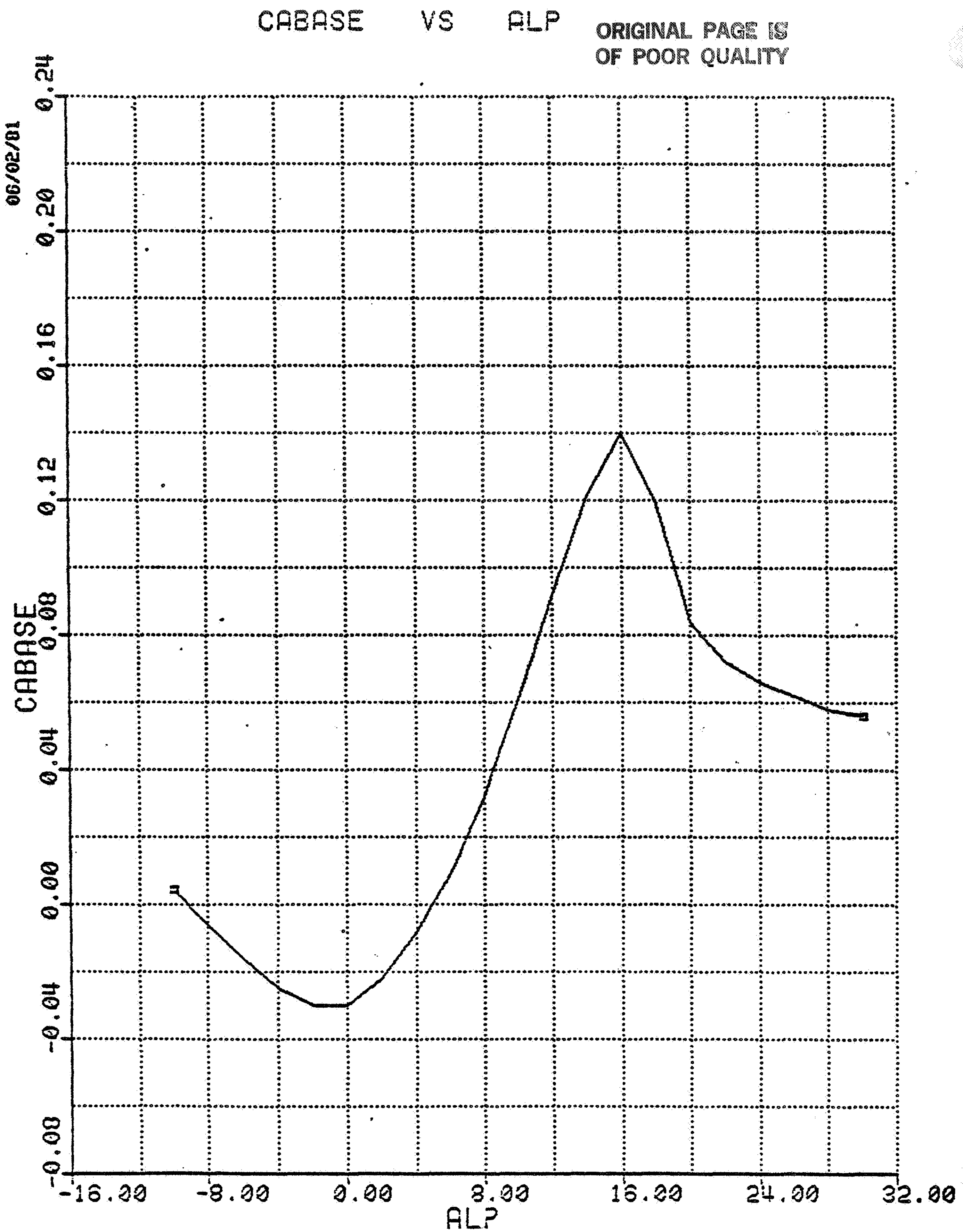
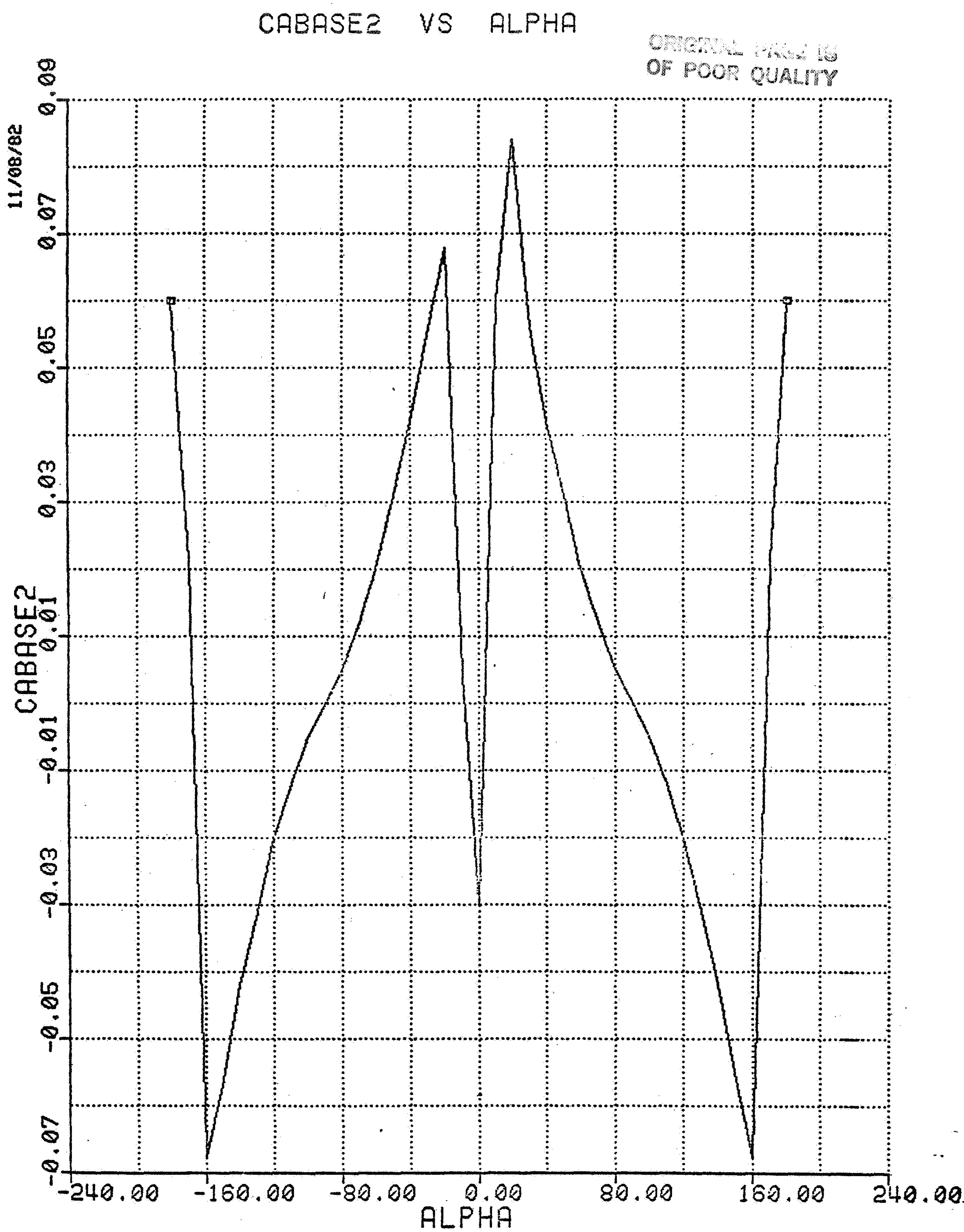
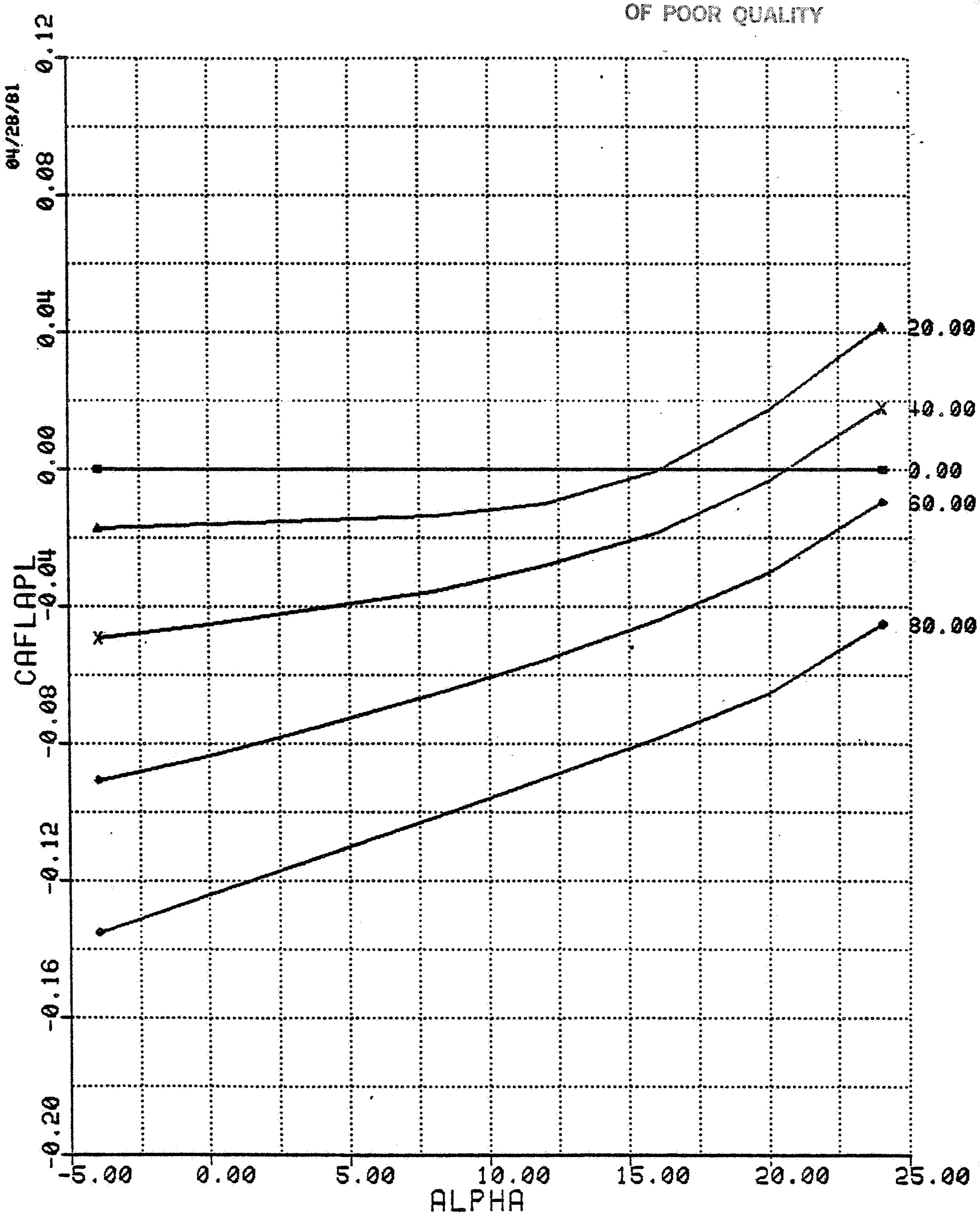
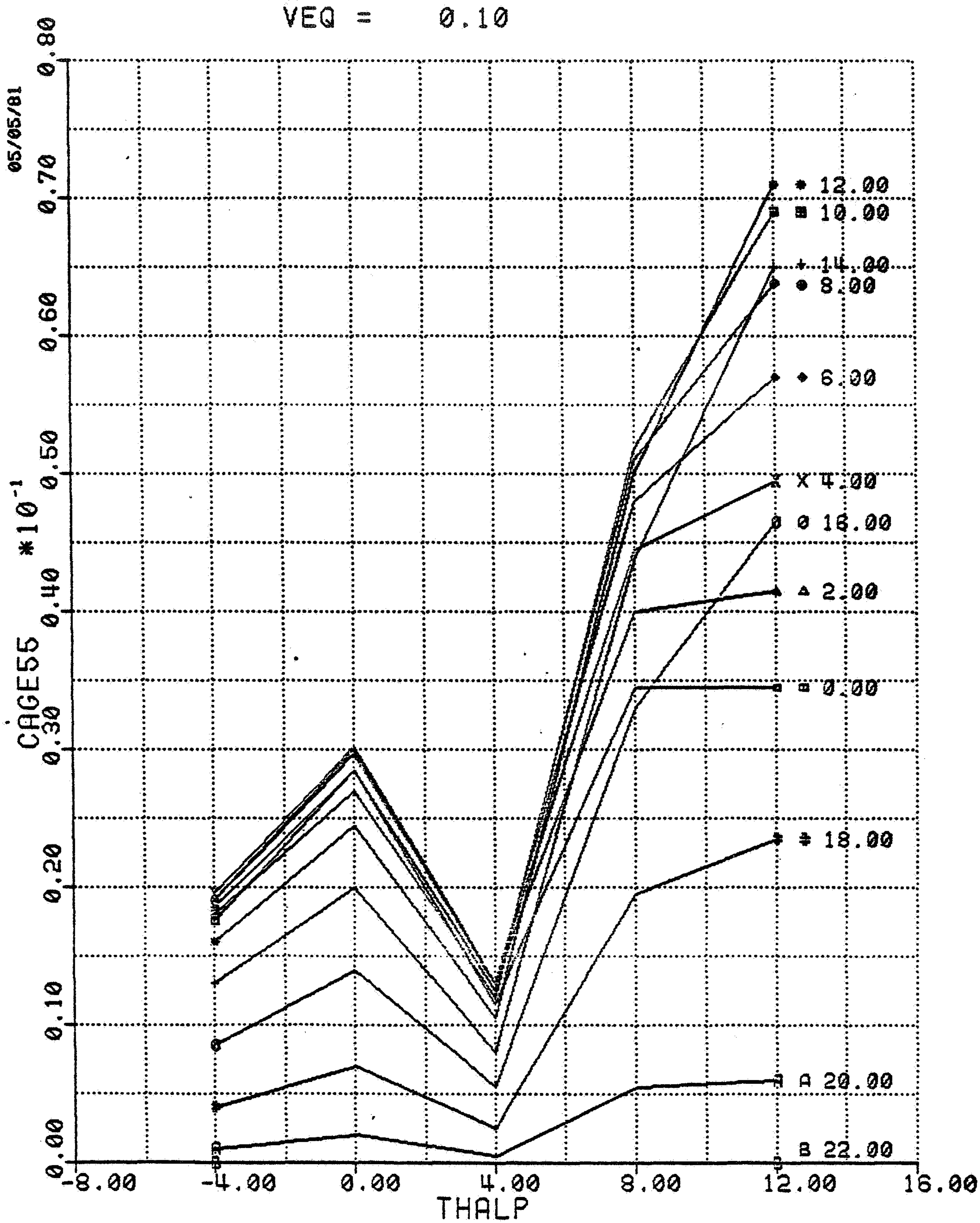



CABASE2 VS ALPHA
11/08/82
CABASE2
0.09
0.07
0.05
0.03
0.01
-0.01
-0.03
-0.05
-0.07
-240.00
-160.00
-80.00
0.00
80.00
160.00
240.00
ALPHA

CAFLAPL VS ALPHA
FOR VARYING DFLAPL



CAGE55 VS THALP
FOR VARYING HP
VEQ = 0.10



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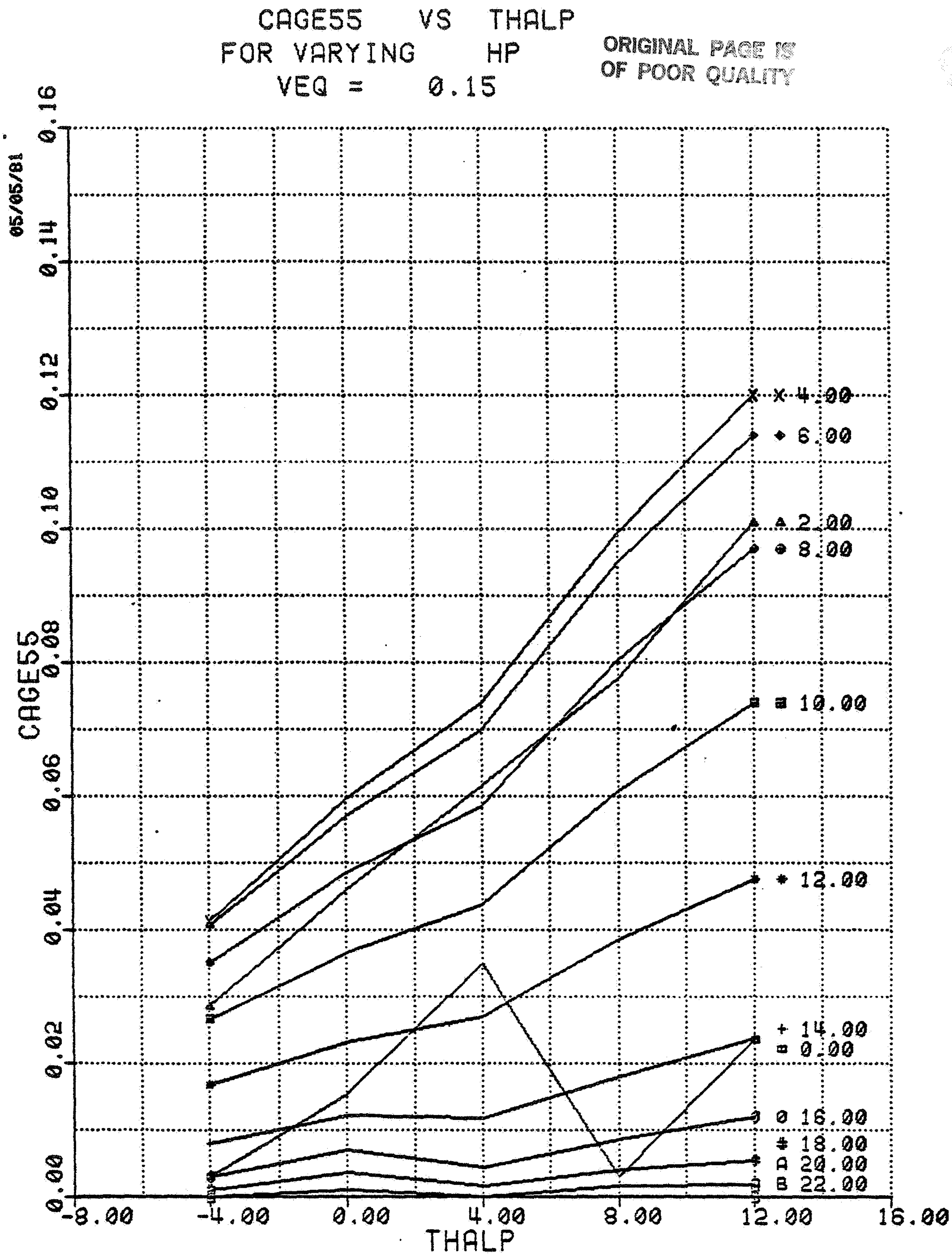
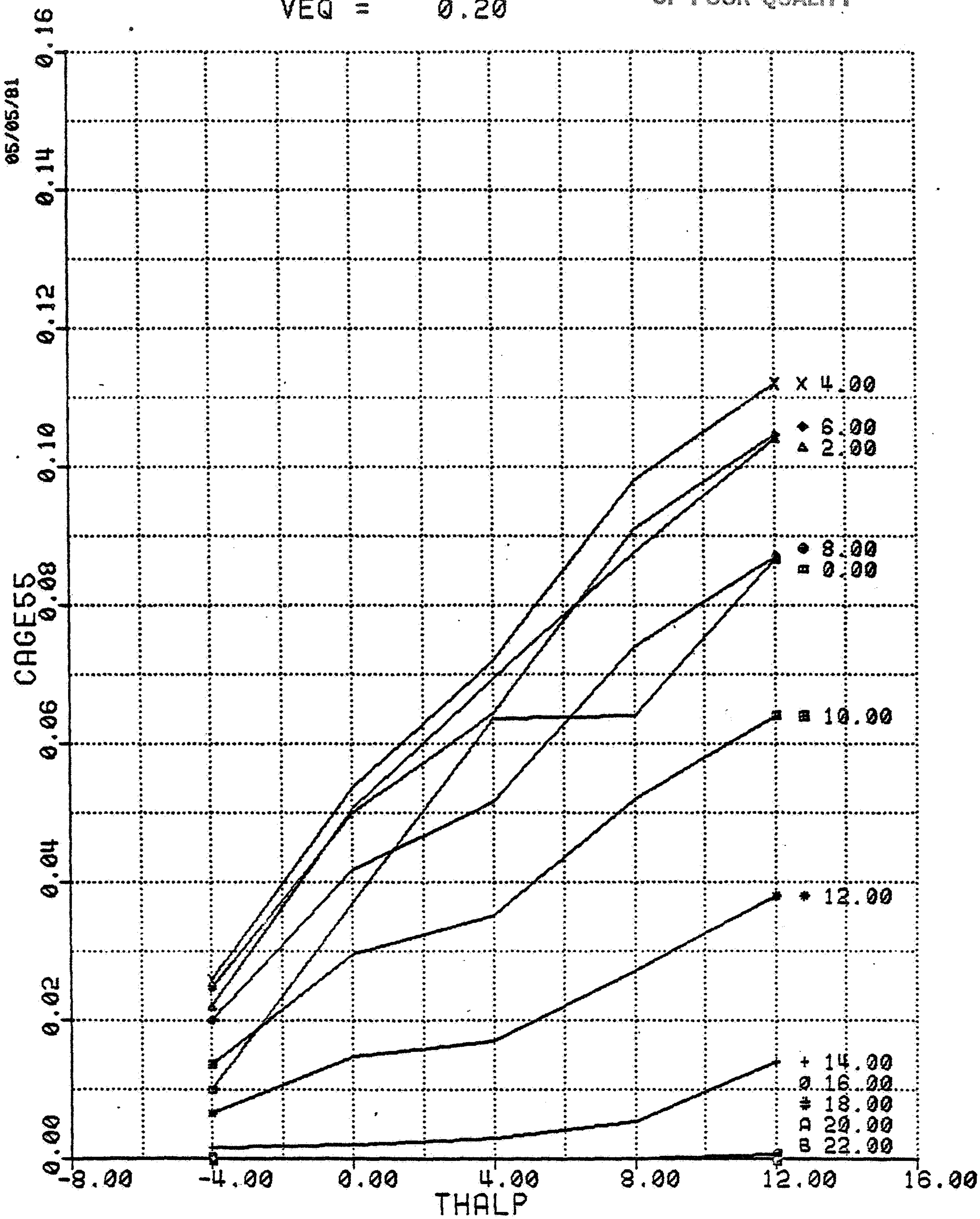
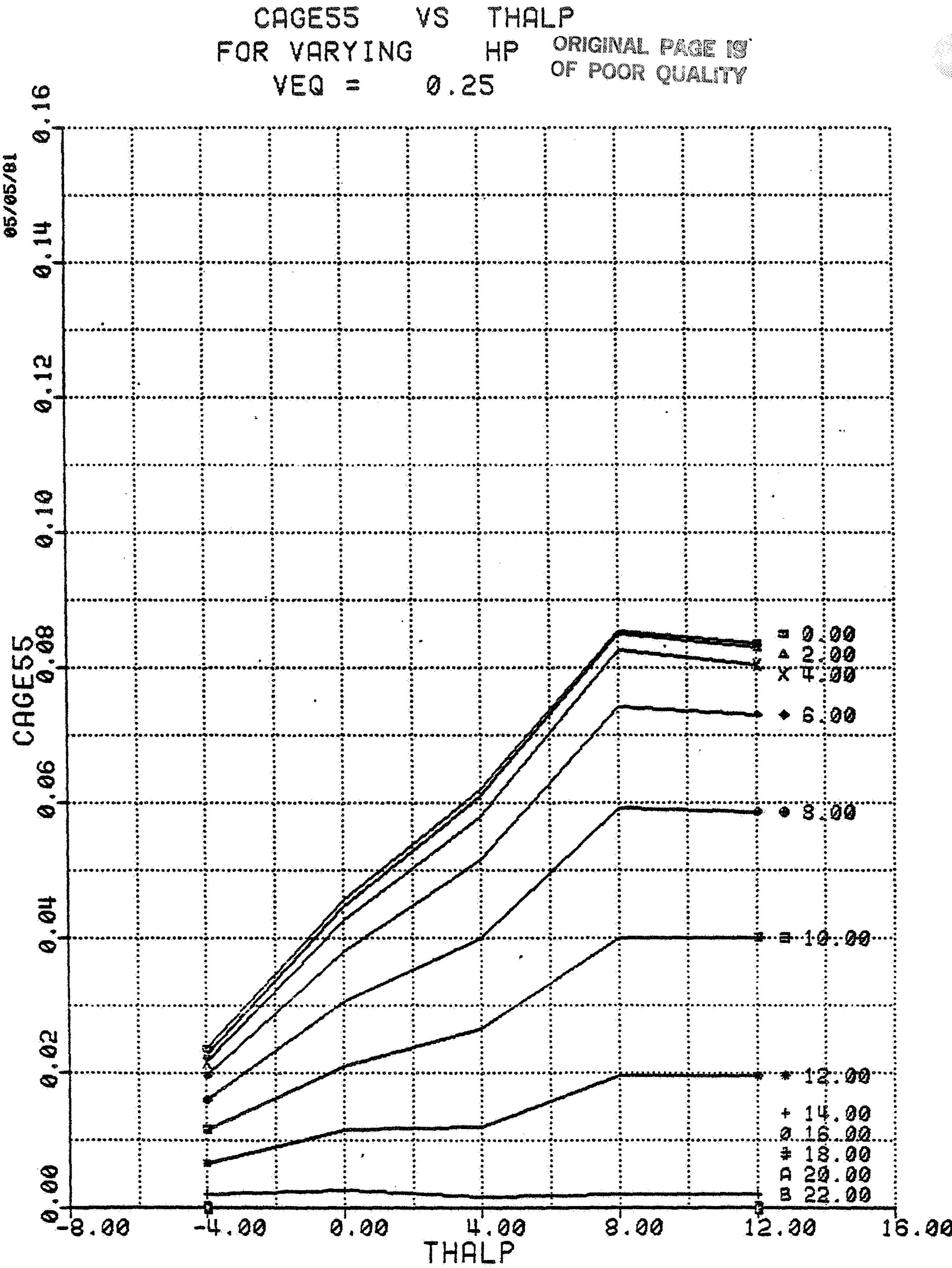
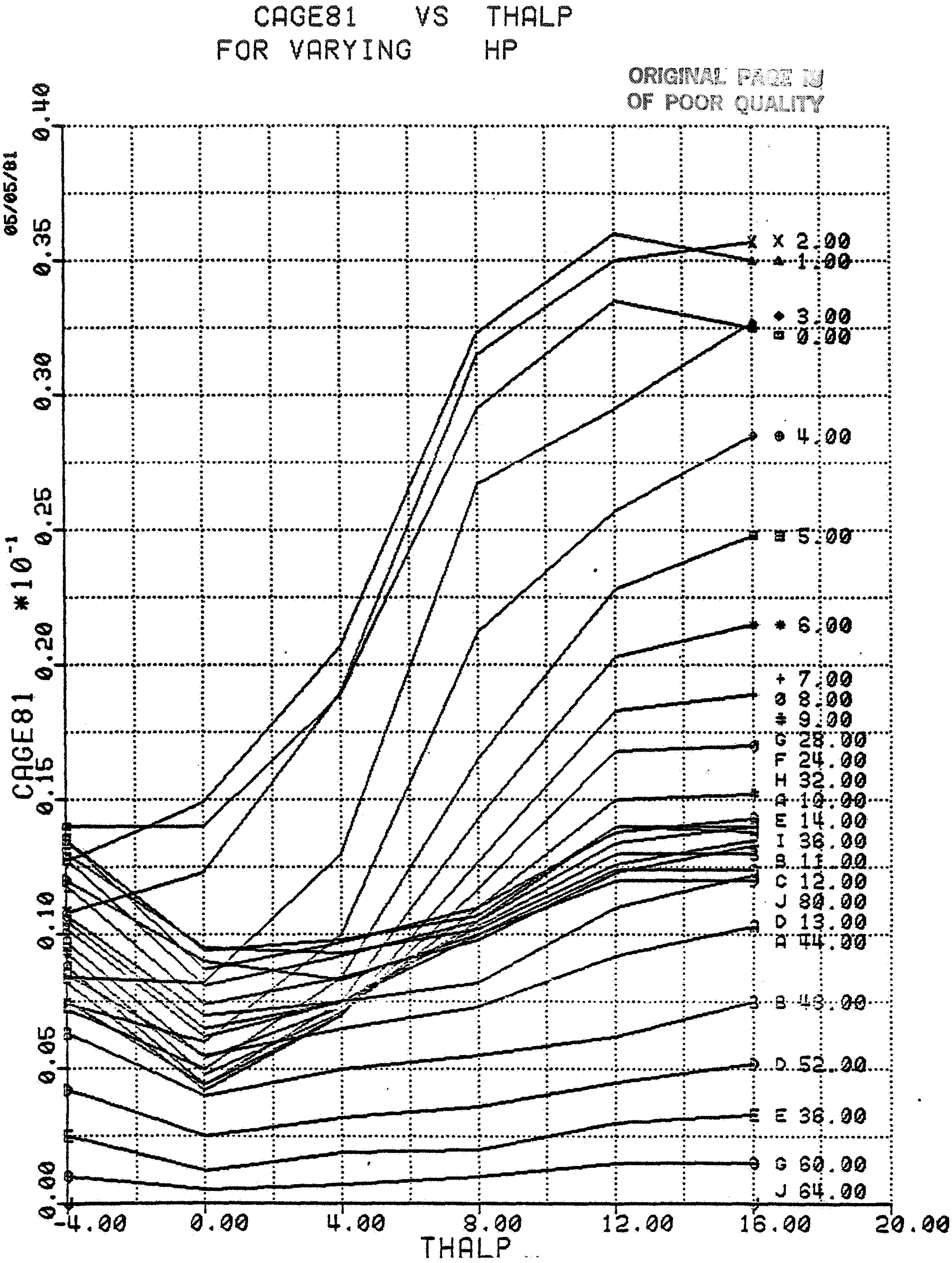
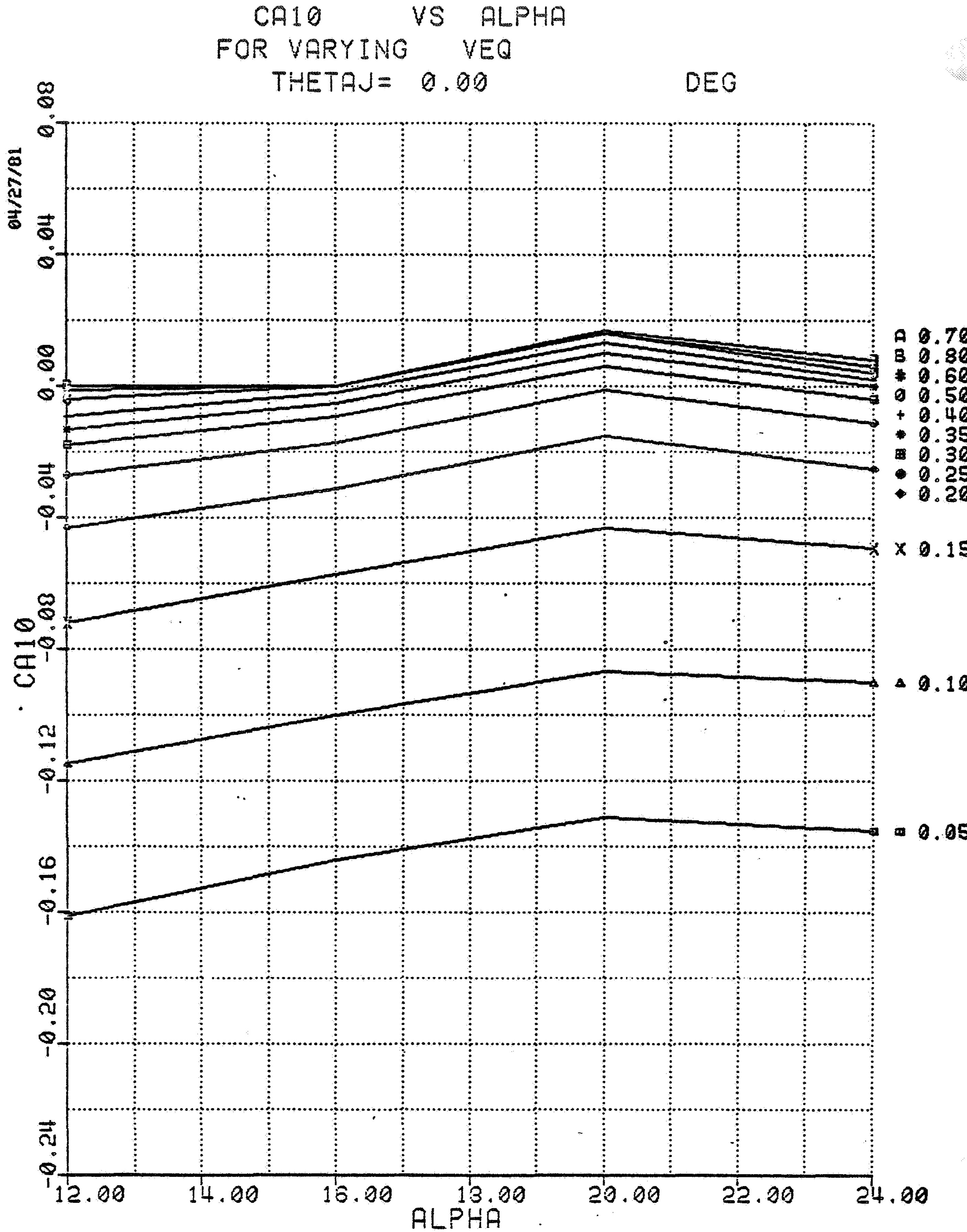


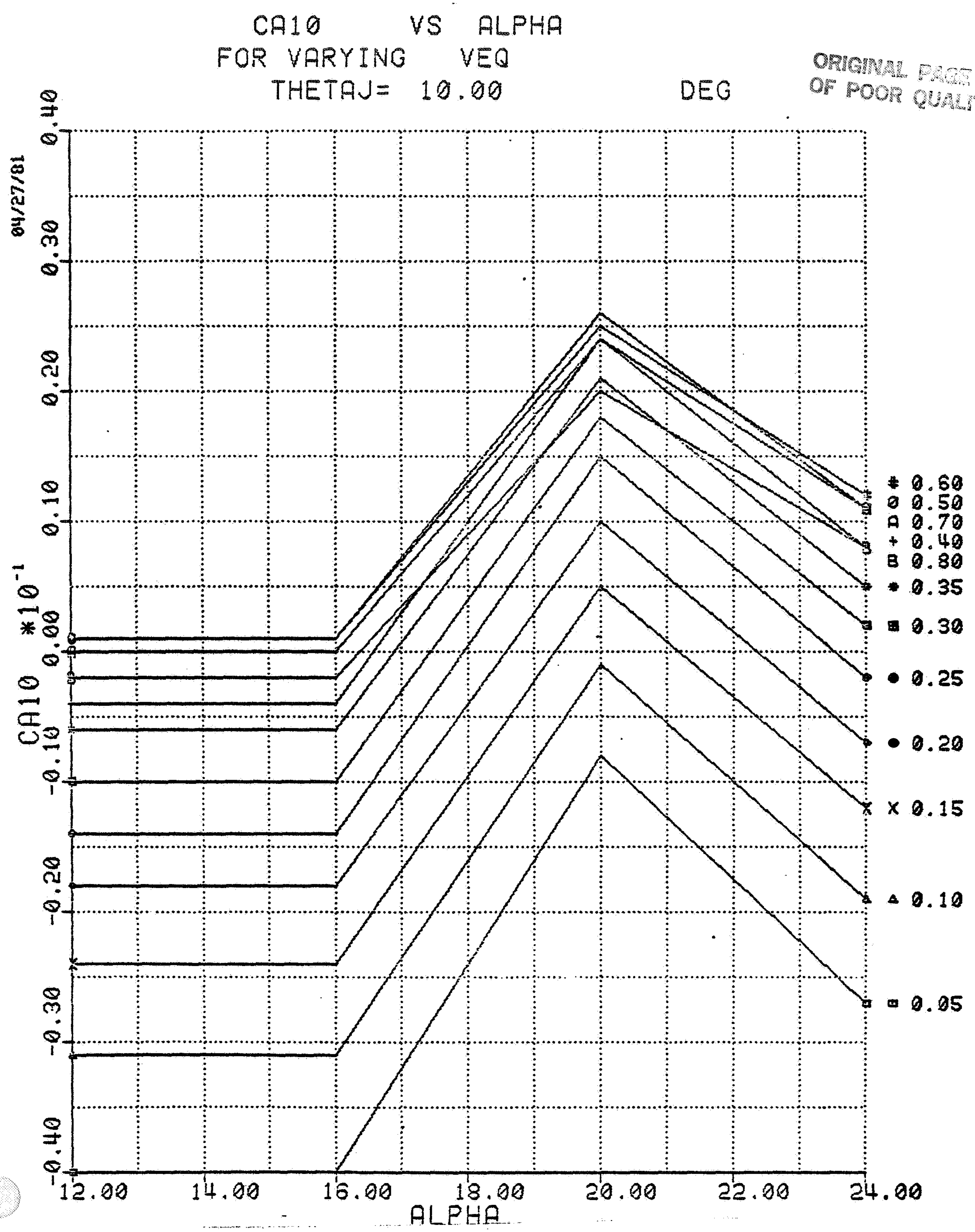
CAGE55 VS THALP
FOR VARYING HP
VEQ = 0.20



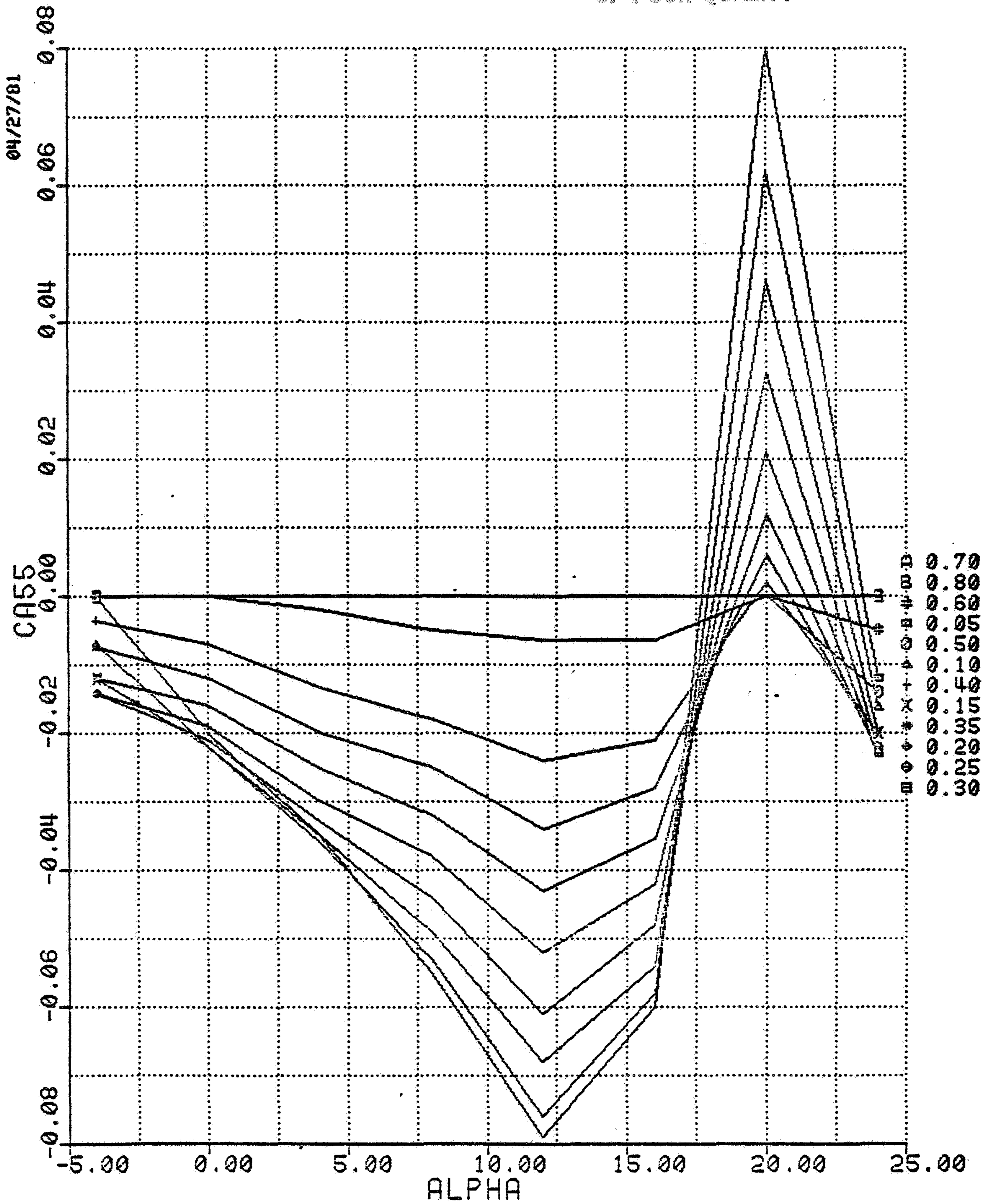

CAGE55 VS THALP
FOR VARYING HP
VEQ = 0.25
05/05/81
CAGE55
THALP
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00


CAGE81 VS THALP
FOR VARYING HP
05/05/81
CAGE81 *10^-1
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
THALP
X 2.00
▲ 1.00
◆ 3.00
▣ 0.00
⊕ 4.00
▣ 5.00
✱ 6.00
+ 7.00
Ø 8.00
‡ 9.00
G 28.00
F 24.00
H 32.00
A 10.00
E 14.00
I 36.00
B 11.00
C 12.00
J 80.00
D 13.00
A 44.00
B 48.00
D 52.00
E 36.00
G 60.00
J 64.00

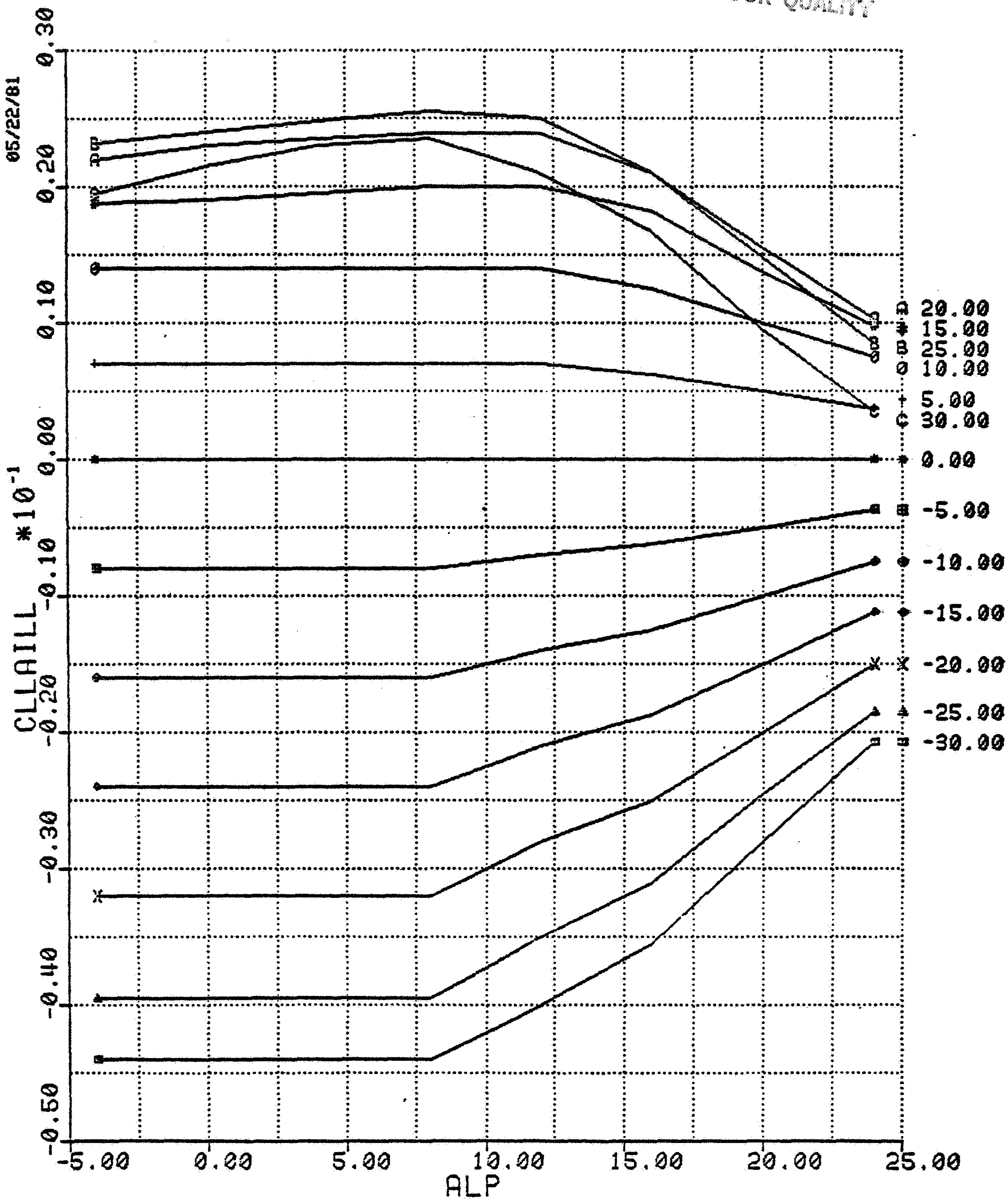

CA10 VS ALPHA
FOR VARYING VEQ
THETAJ= 0.00 DEG
04/27/81
CA10
0.08
0.04
0.00
-0.04
-0.08
-0.12
-0.16
-0.20
-0.24
12.00
14.00
16.00
13.00
20.00
22.00
24.00
ALPHA
A 0.70
B 0.80
* 0.60
Ø 0.50
+ 0.40
* 0.35
⊞ 0.30
● 0.25
◆ 0.20
X 0.15
▲ 0.10
◘ 0.05

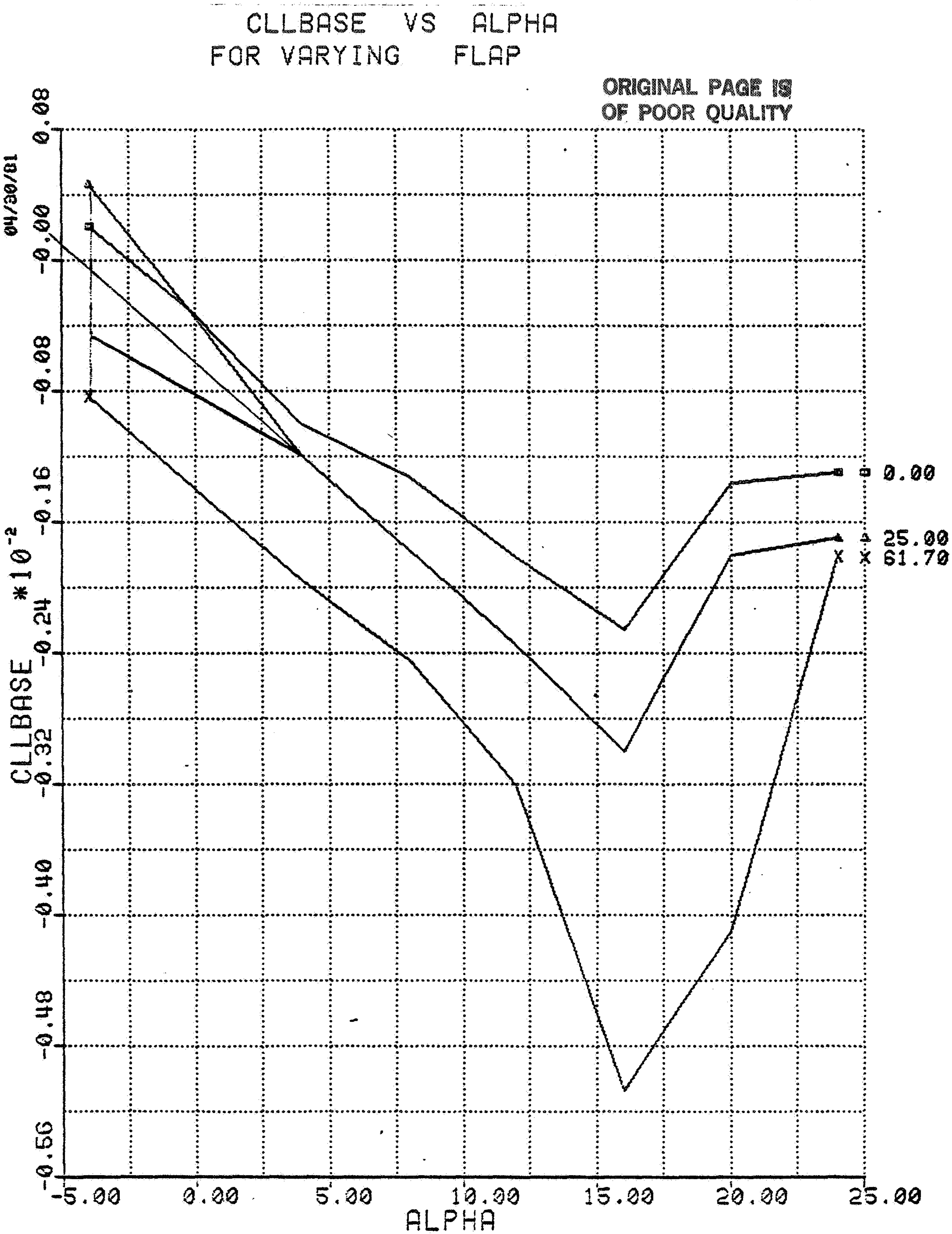

CA10 VS ALPHA
FOR VARYING VEQ
THETAJ= 10.00 DEG
04/27/81
CA10 *10⁻¹
ALPHA
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
12.00
14.00
16.00
18.00
20.00
22.00
24.00
0.60
0 0.50
A 0.70
+ 0.40
B 0.80
* 0.35
■ 0.30
● 0.25
● 0.20
X 0.15
▲ 0.10
■ 0.05

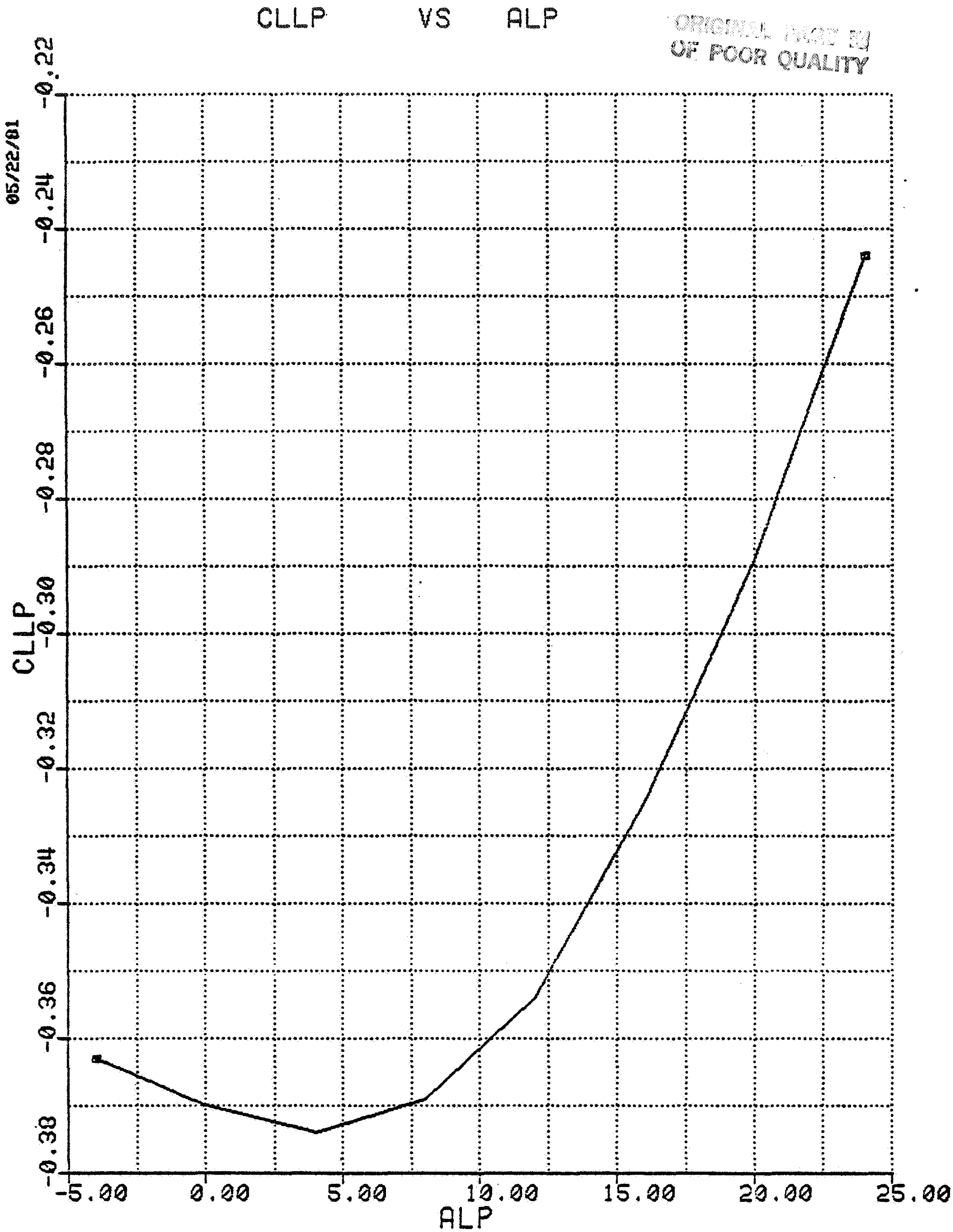
CA55 VS ALPHA
FOR VARYING VEQ

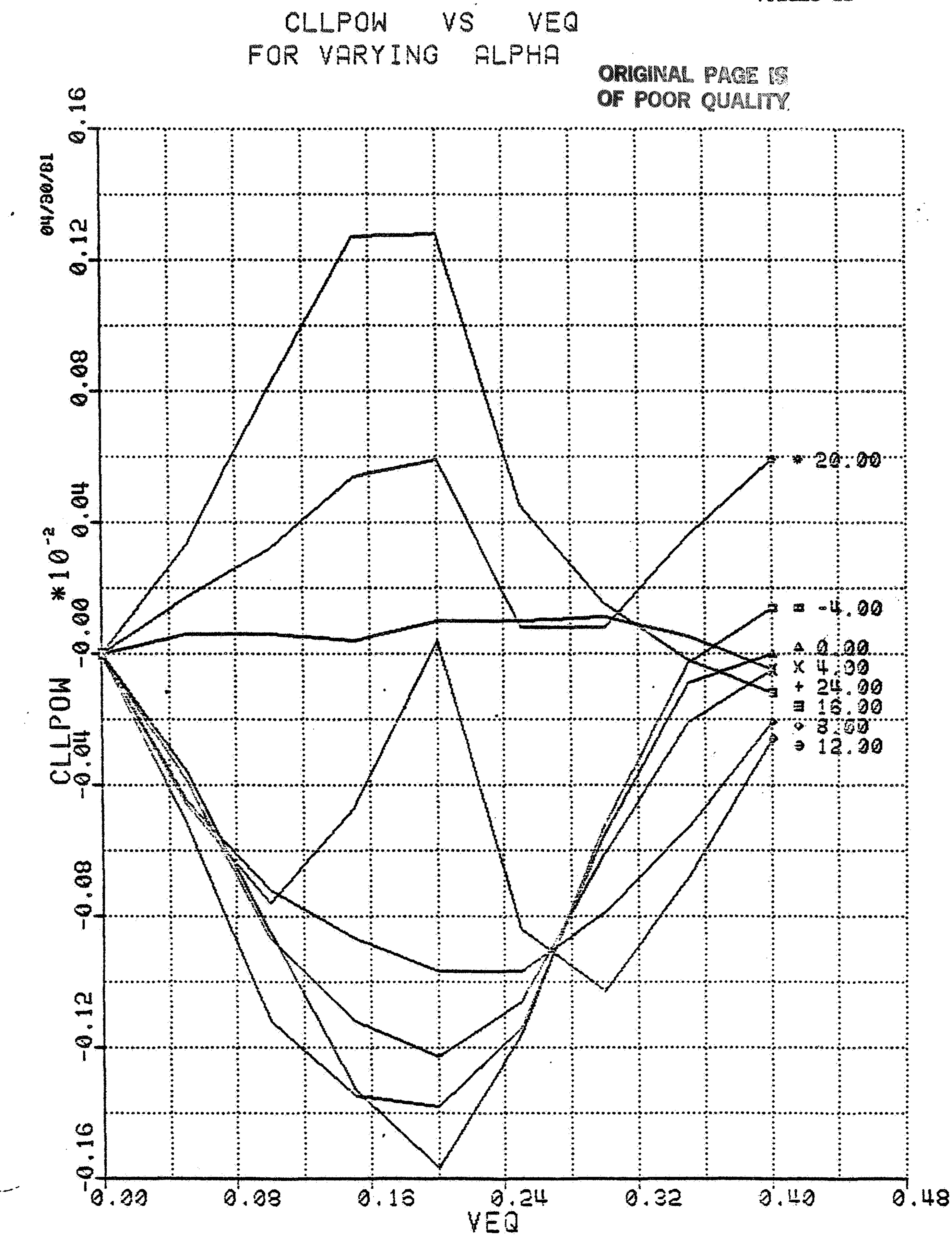


CLLAILL VS ALP
FOR VARYING DAL




CLLBASE VS ALPHA
FOR VARYING FLAP
04/30/81
CLLBASE *10^-2
0.08
-0.00
-0.08
-0.16
-0.24
-0.32
-0.40
-0.48
-0.56
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA
0.00
25.00
61.70


CLLP VS ALP
05/22/81
CLLP
-0.22
-0.24
-0.26
-0.28
-0.30
-0.32
-0.34
-0.36
-0.38
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALP


CLLPOW VS VEQ
FOR VARYING ALPHA
04/30/81
CLLPOW *10^-2
0.16
0.12
0.08
0.04
0.00
-0.00
-0.04
-0.08
-0.12
-0.16
20.00
-4.00
0.00
4.00
24.00
16.00
8.00
12.00
0.00
0.08
0.16
0.24
0.32
0.40
0.48
VEQ

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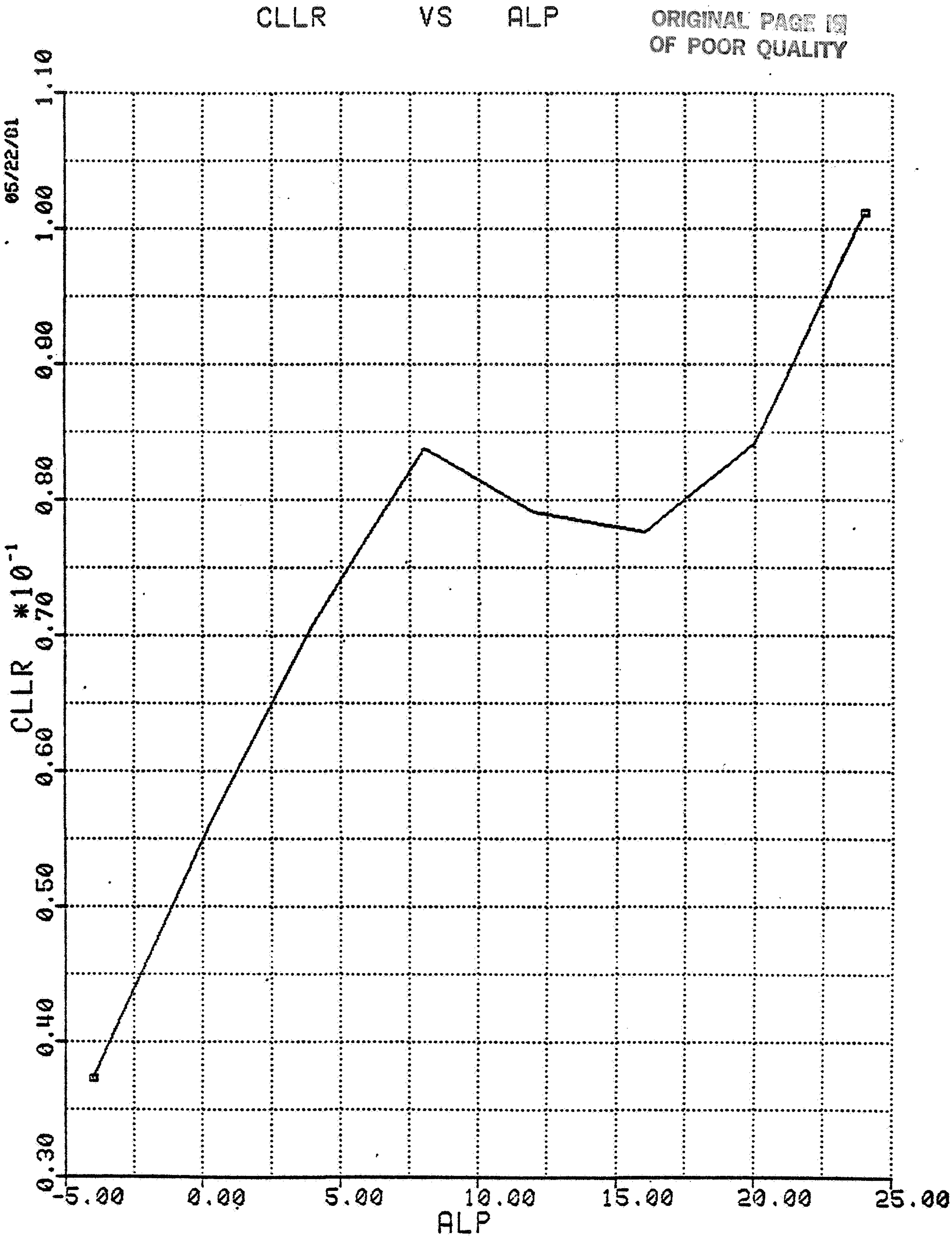

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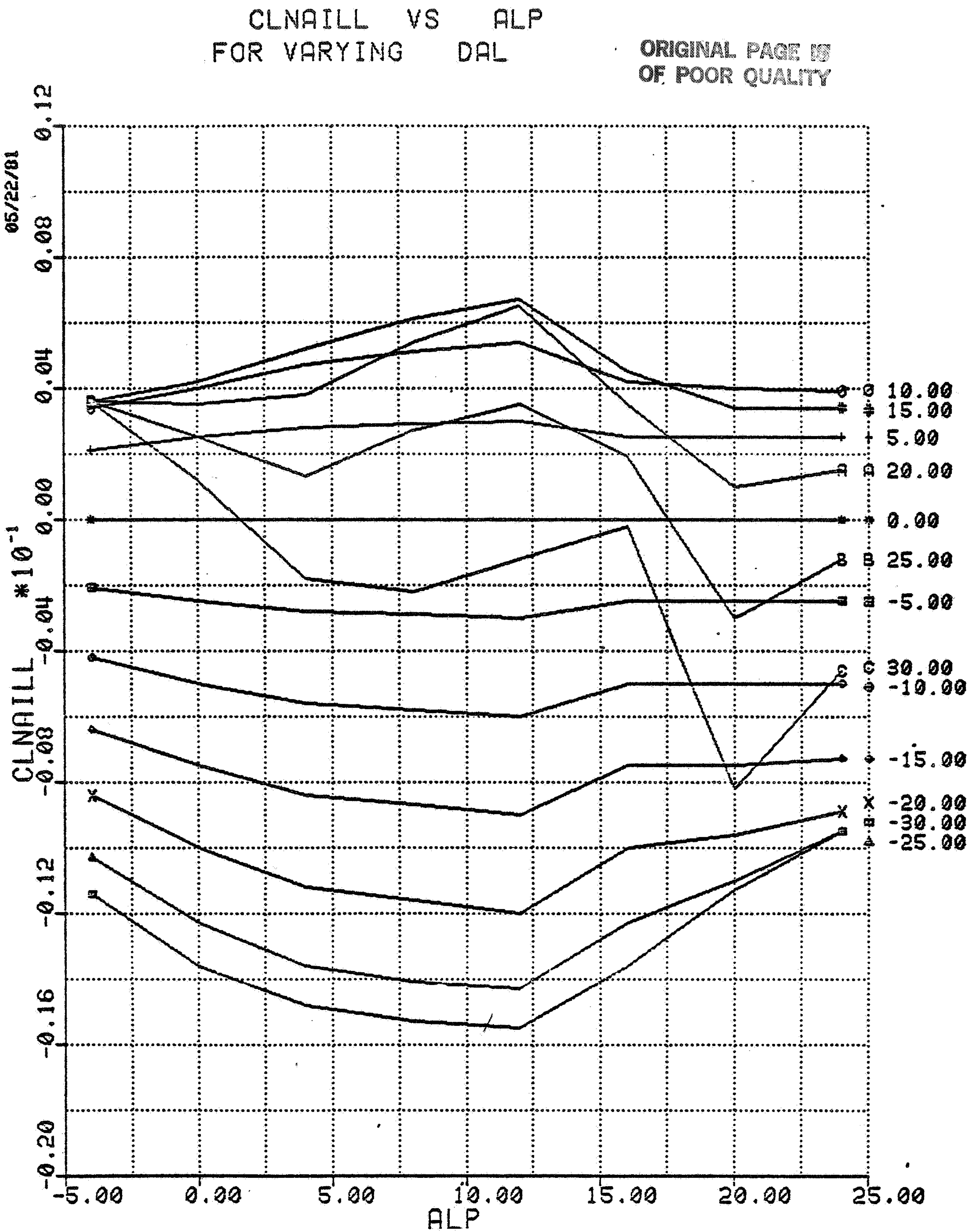
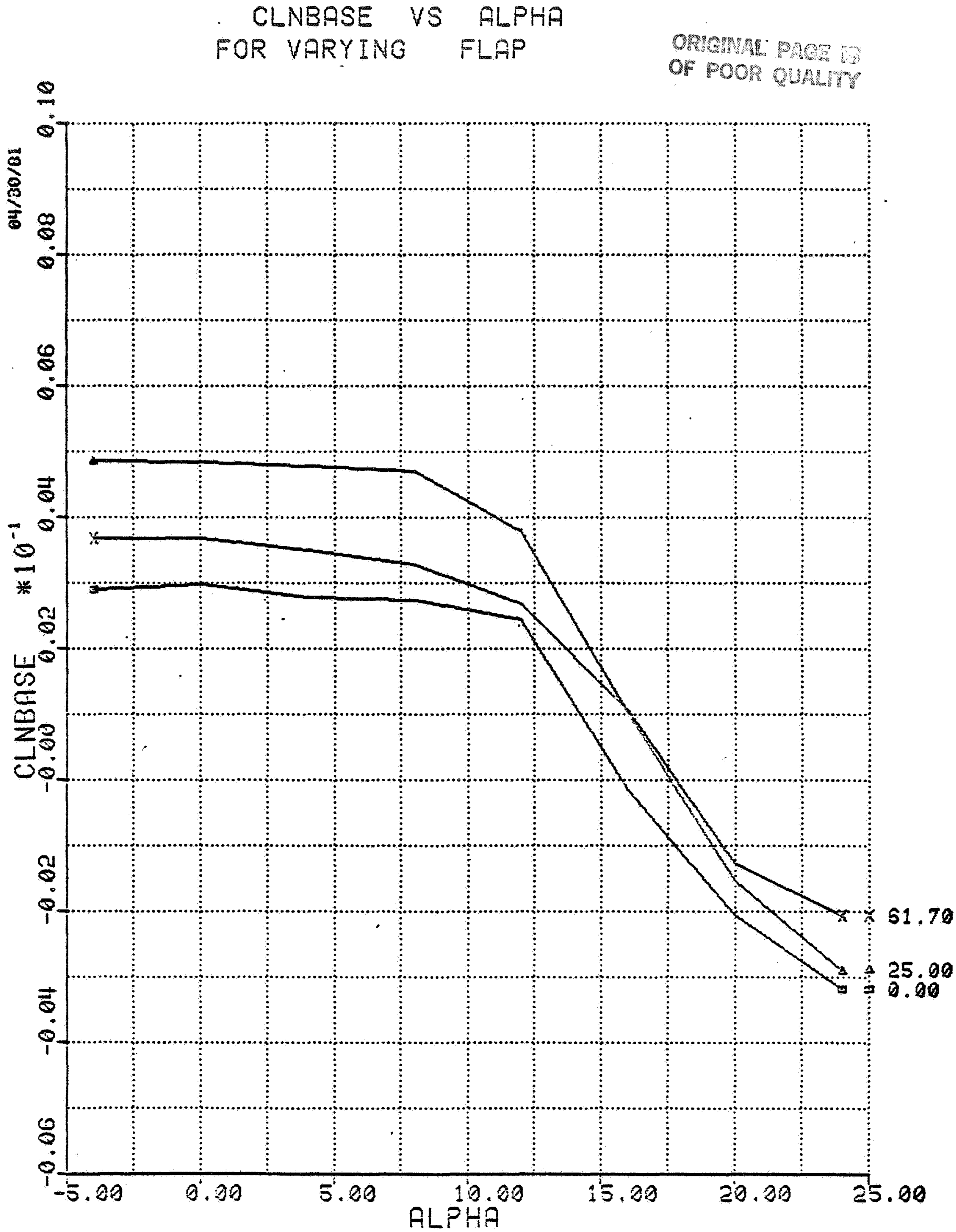
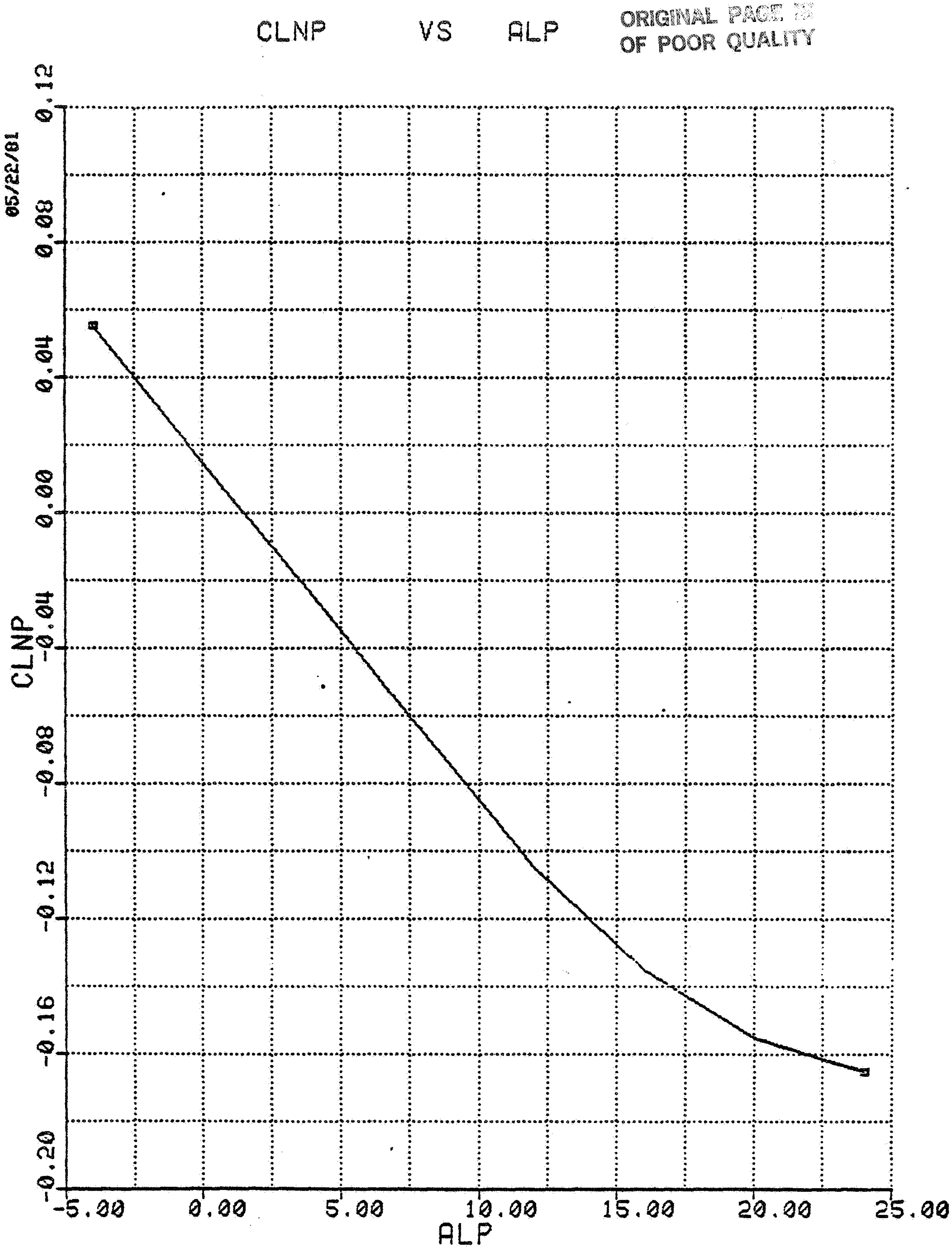
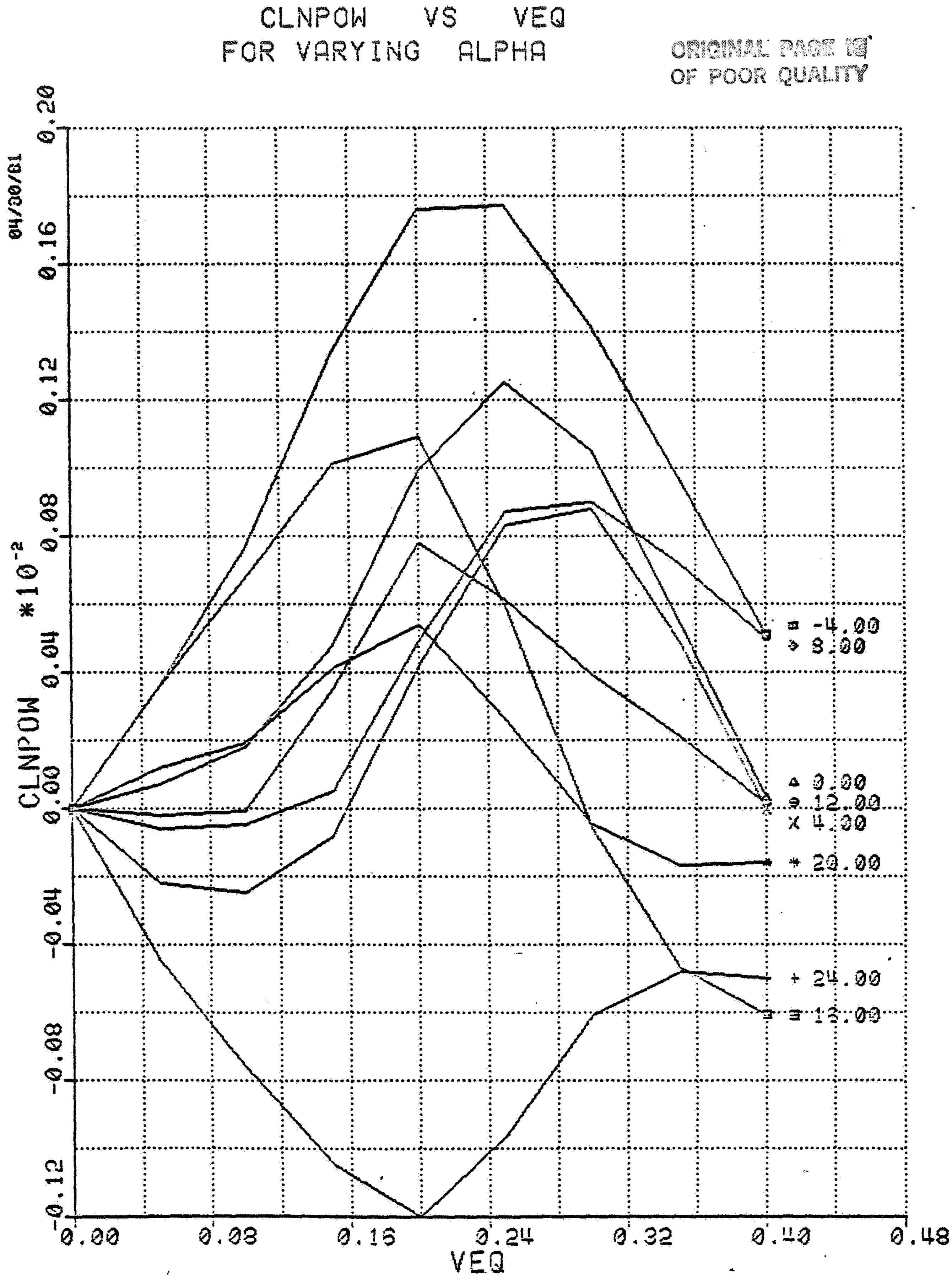
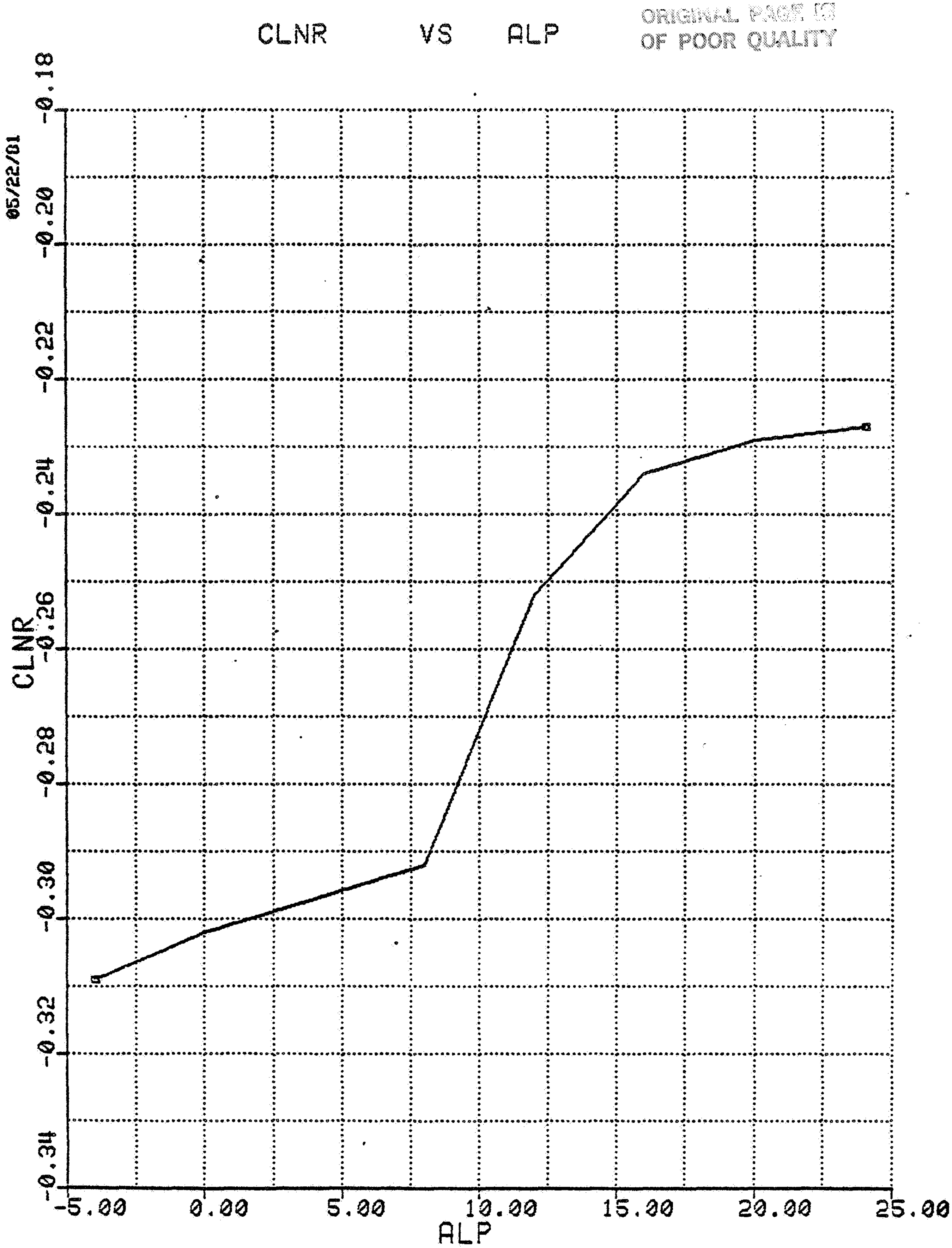
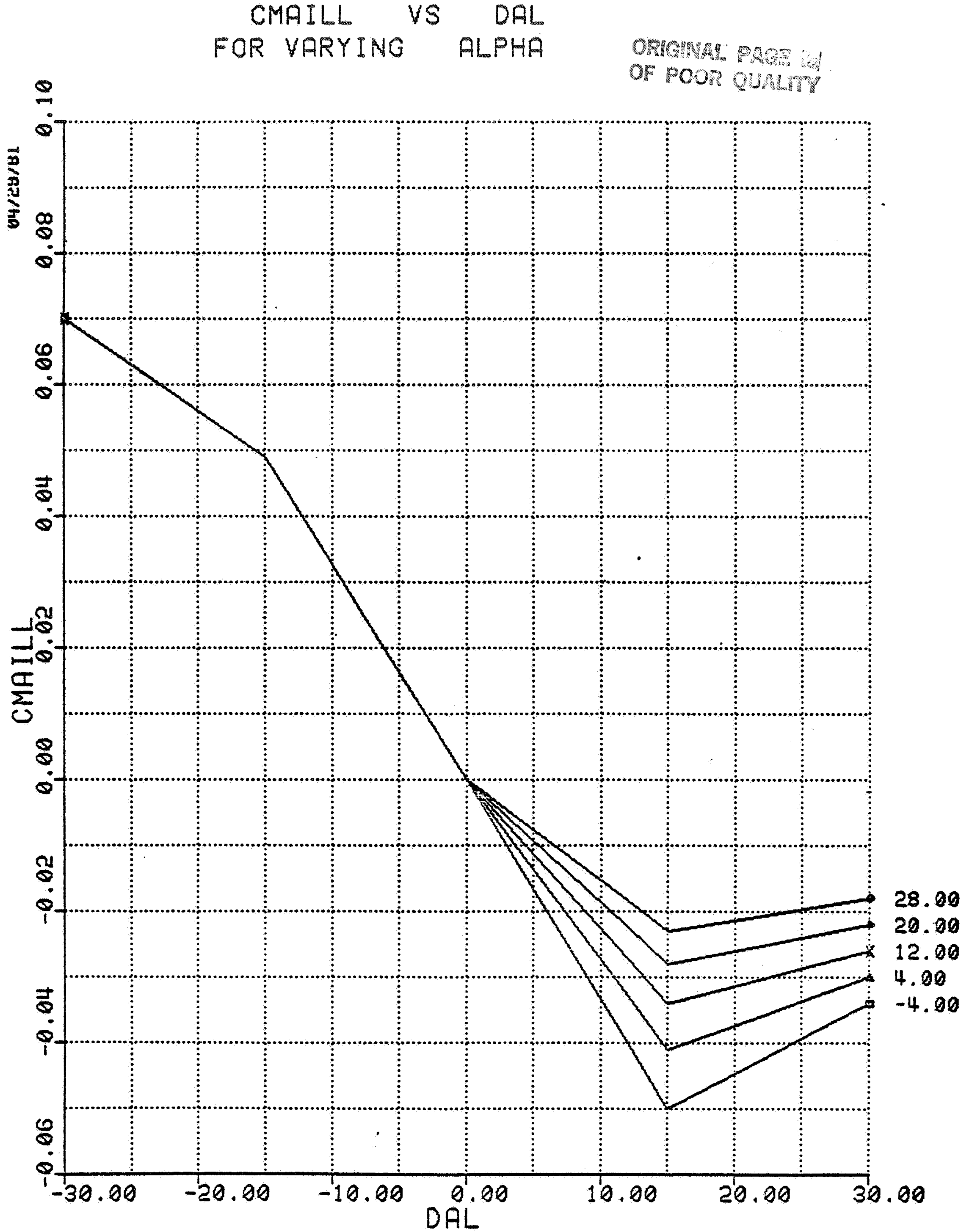



CLNBASE VS ALPHA
FOR VARYING FLAP
04/30/81
CLNBASE *10^{-1}
0.10
0.08
0.06
0.04
0.02
-0.00
-0.02
-0.04
-0.06
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA
61.70
25.00
0.00

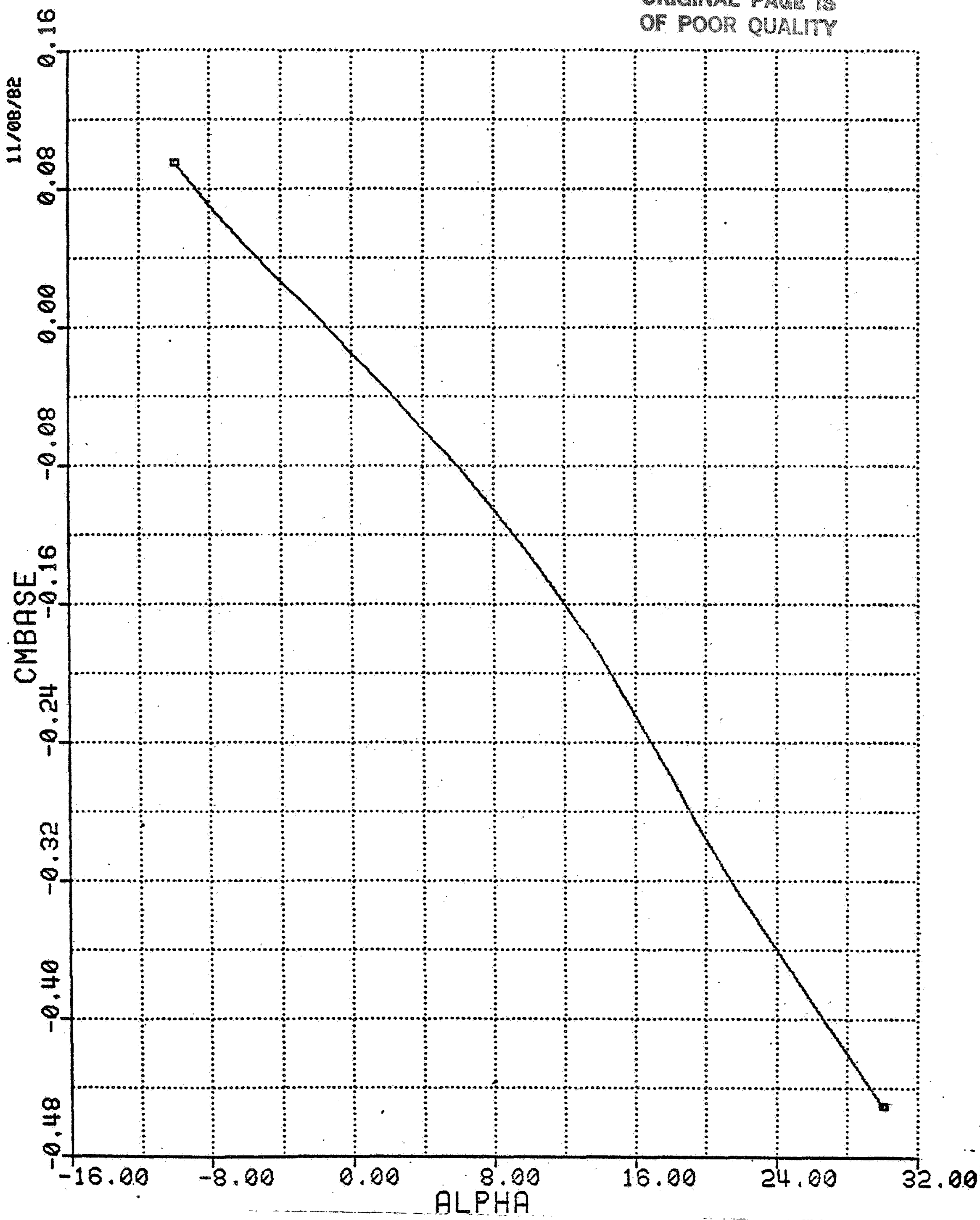

CLNP VS ALP
05/22/81
CLNP
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
-0.16
-0.20
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALP

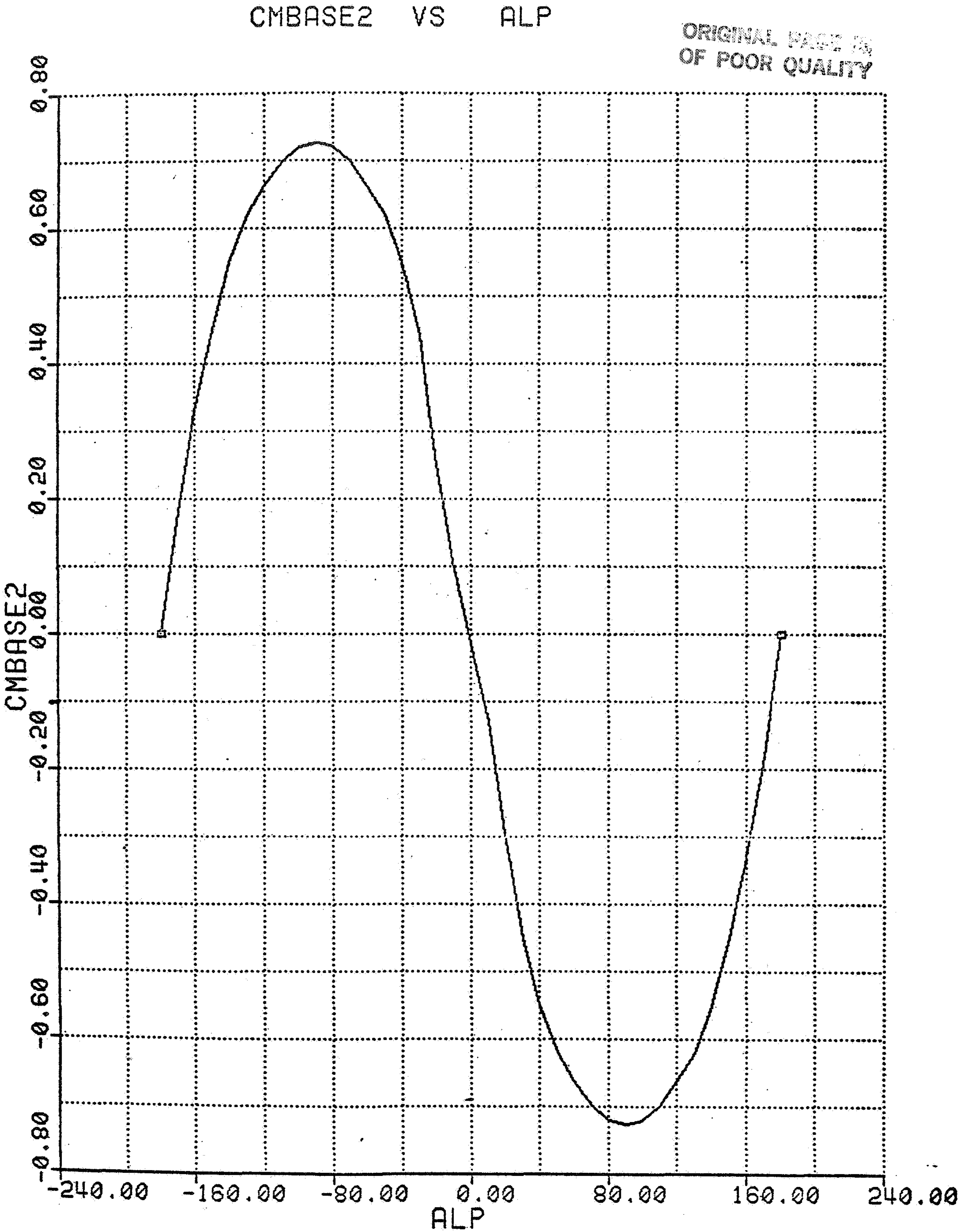

CLNPOW VS VEQ
FOR VARYING ALPHA
04/30/81
CLNPOW *10^-2
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
0.00
0.08
0.16
0.24
0.32
0.40
0.48
VEQ
-4.00
8.00
0.00
12.00
4.00
20.00
24.00
16.00

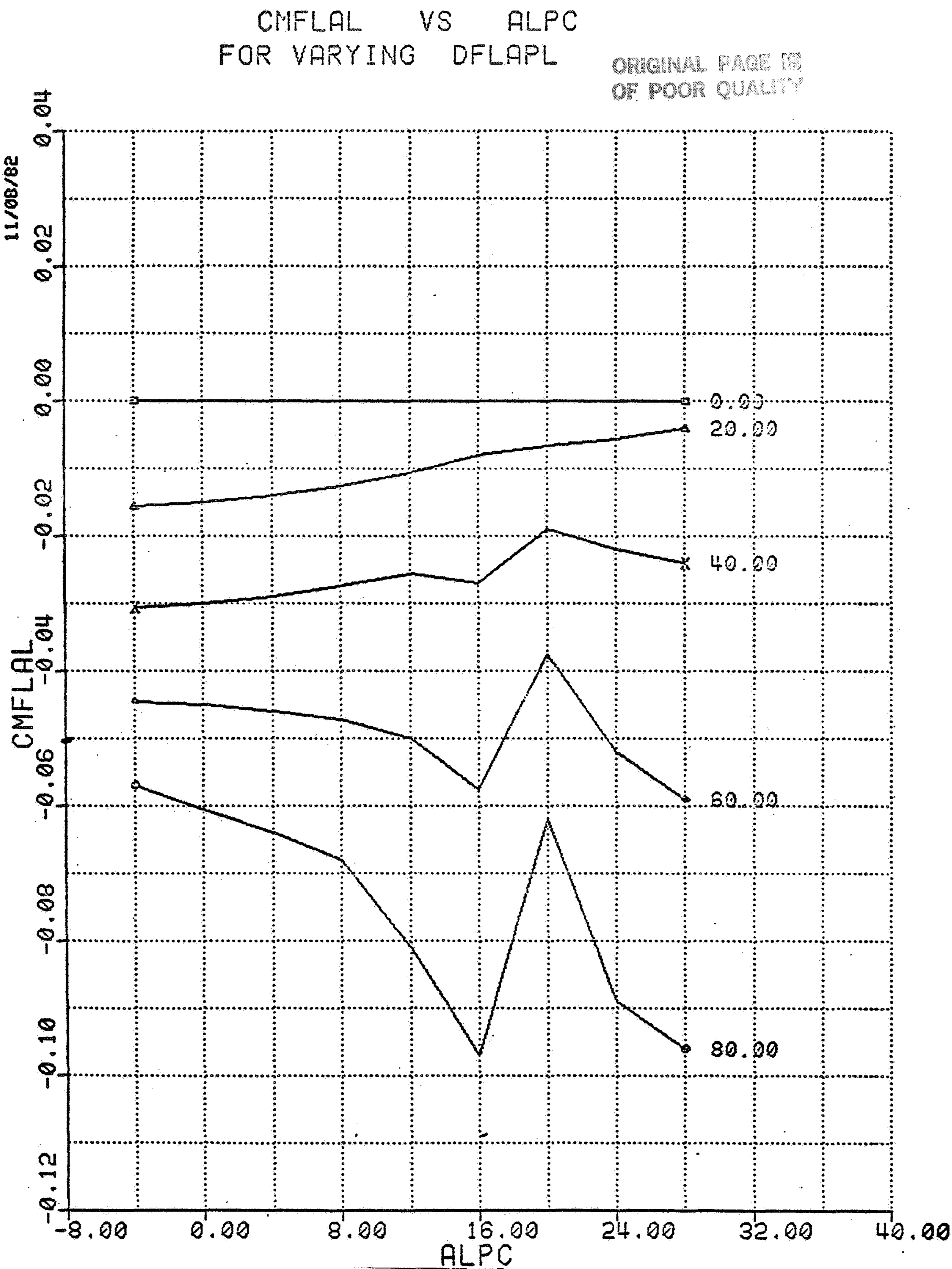

CLNR VS ALP
05/22/81
-0.18
-0.20
-0.22
-0.24
-0.26
-0.28
-0.30
-0.32
-0.34
CLNR
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALP


CMAILL VS DAL
FOR VARYING ALPHA
04/29/81
CMAILL
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-30.00
-20.00
-10.00
0.00
10.00
20.00
30.00
DAL
28.00
20.00
12.00
4.00
-4.00

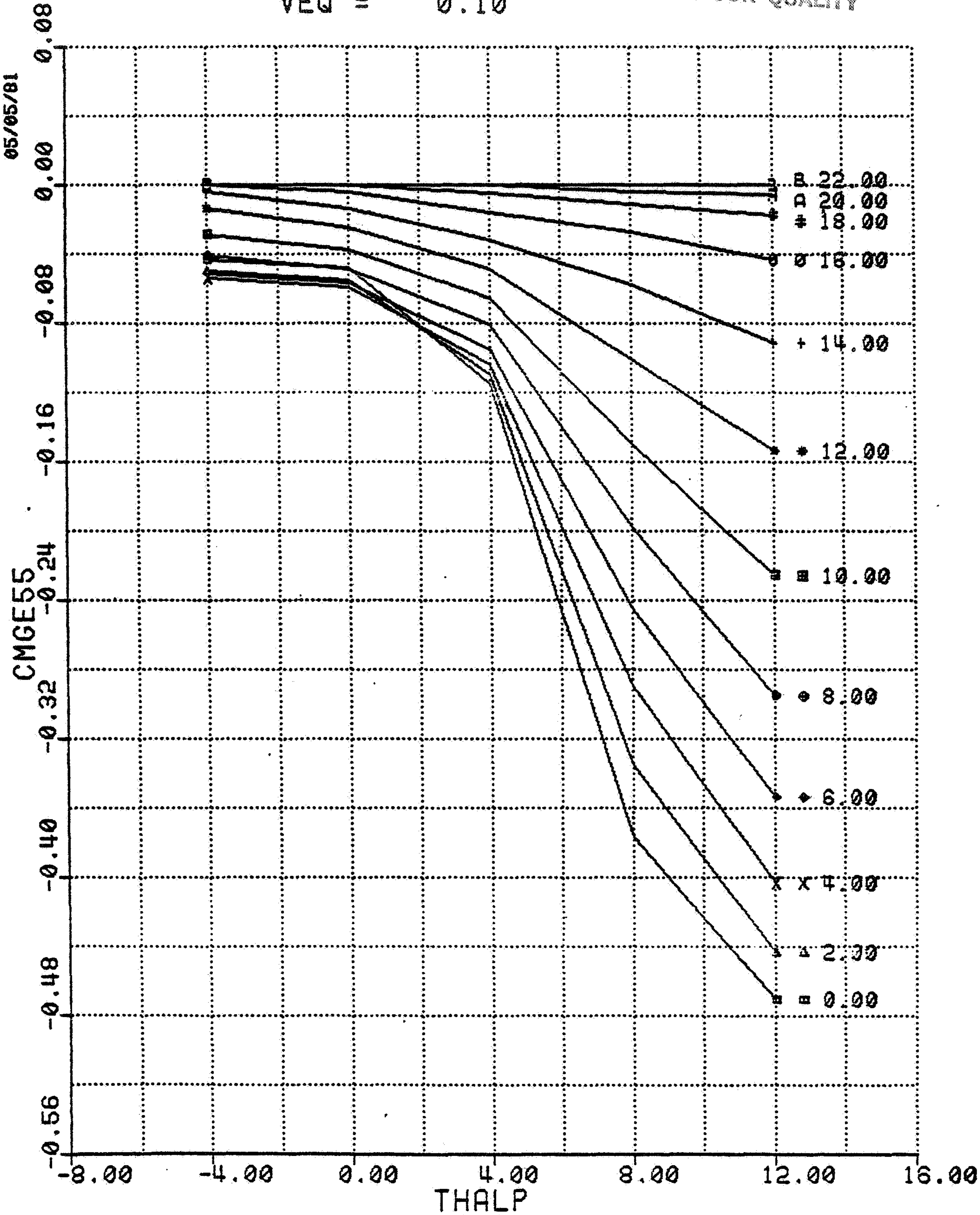
CMBASE VS ALPHA

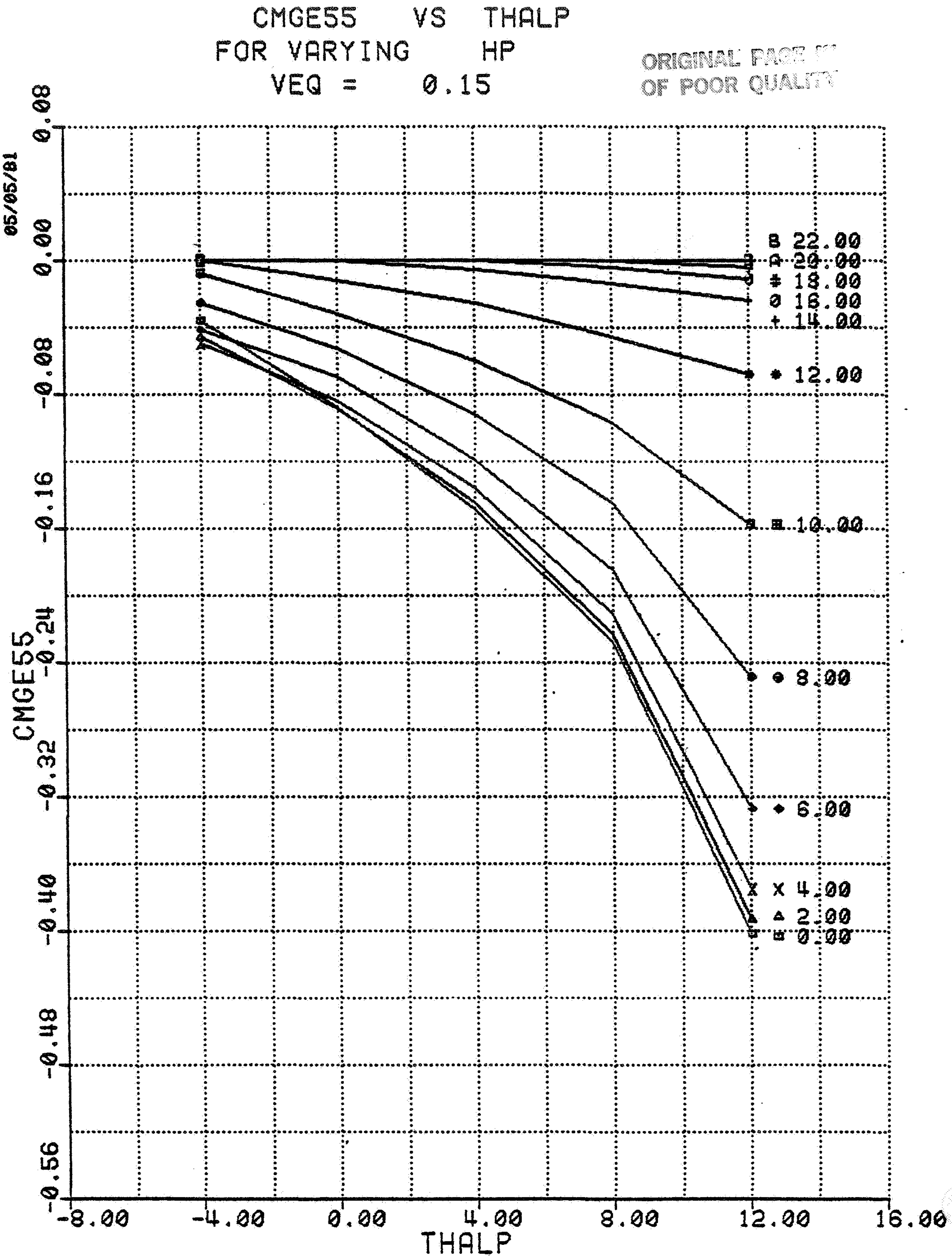


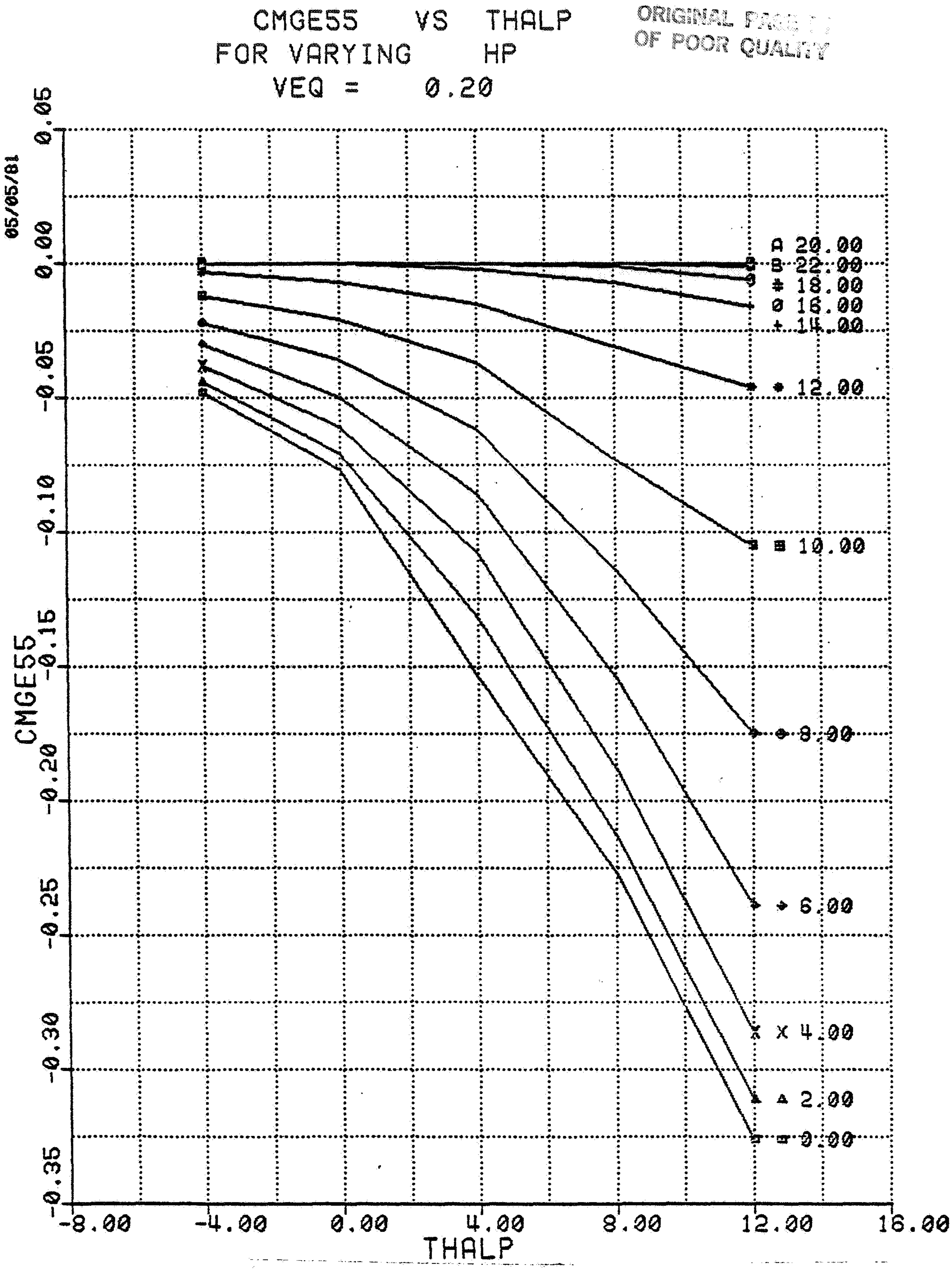

CMBASE2 VS ALP
CMBASE2
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-240.00
-160.00
-80.00
0.00
80.00
160.00
240.00
ALP

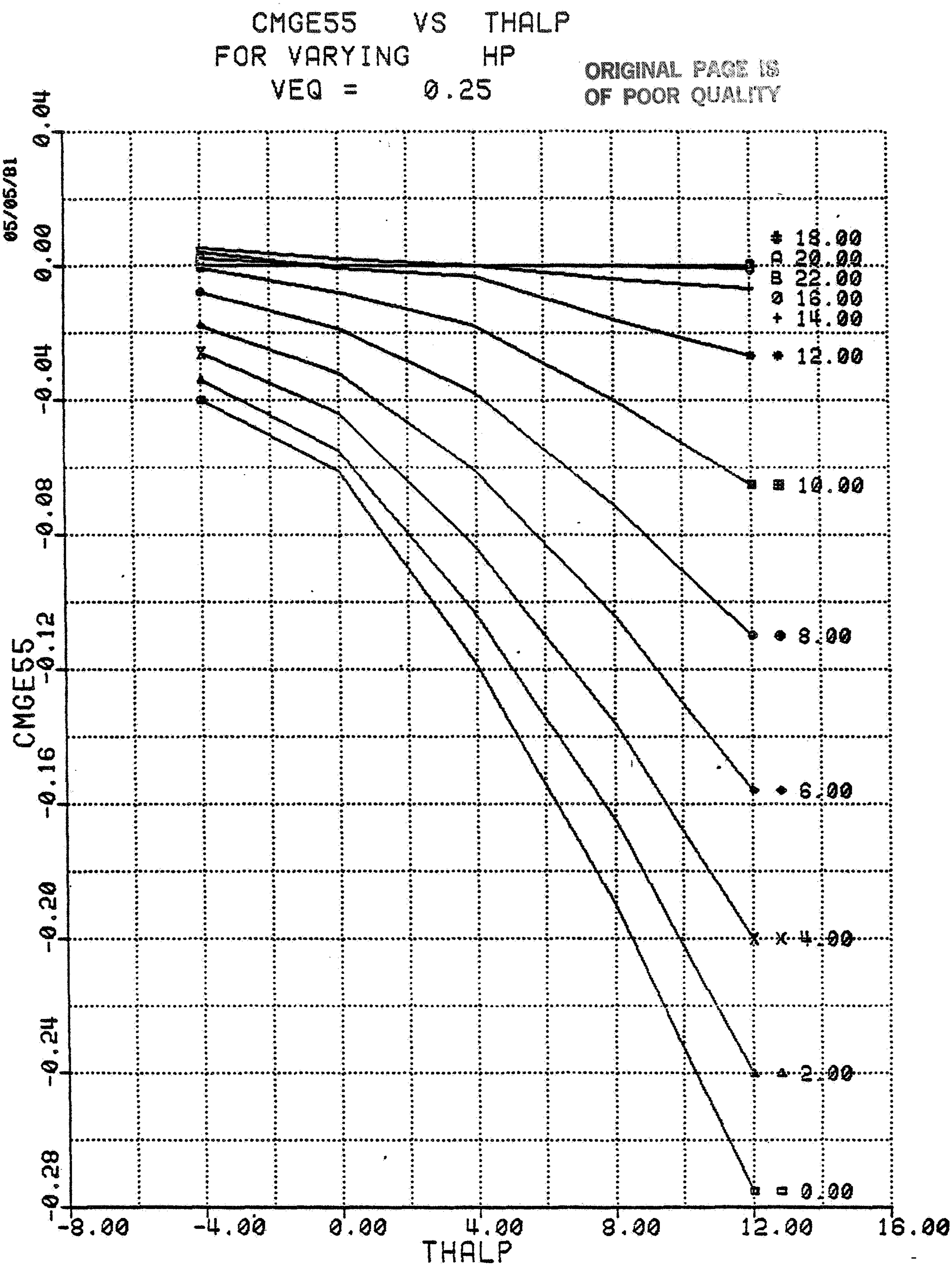

CMFLAL VS ALPC
FOR VARYING DFLAPL
11/08/82
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
CMFLAL
0.00
20.00
40.00
60.00
80.00
-8.00
0.00
8.00
16.00
24.00
32.00
40.00
ALPC

CMGE55 VS THALP
FOR VARYING HP
VEQ = 0.10




CMGE55 VS THALP
FOR VARYING HP
VEQ = 0.15
05/05/81
CMGE55
THALP
0.08
0.00
-0.08
-0.16
-0.24
-0.32
-0.40
-0.48
-0.56
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
22.00
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00


CMGE55 VS THALP
FOR VARYING HP
VEQ = 0.20
05/05/81
CMGE55
THALP
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
A 20.00
B 22.00
18.00
0 16.00
+ 14.00
* 12.00
⊞ 10.00
⊕ 8.00
+ 6.00
X 4.00
△ 2.00
⊡ 0.00


CMGE55 VS THALP
FOR VARYING HP
VEQ = 0.25
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05/05/81
CMGE55
THALP
0.04
0.00
-0.04
-0.08
-0.12
-0.16
-0.20
-0.24
-0.28
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
18.00
20.00
22.00
16.00
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12.00
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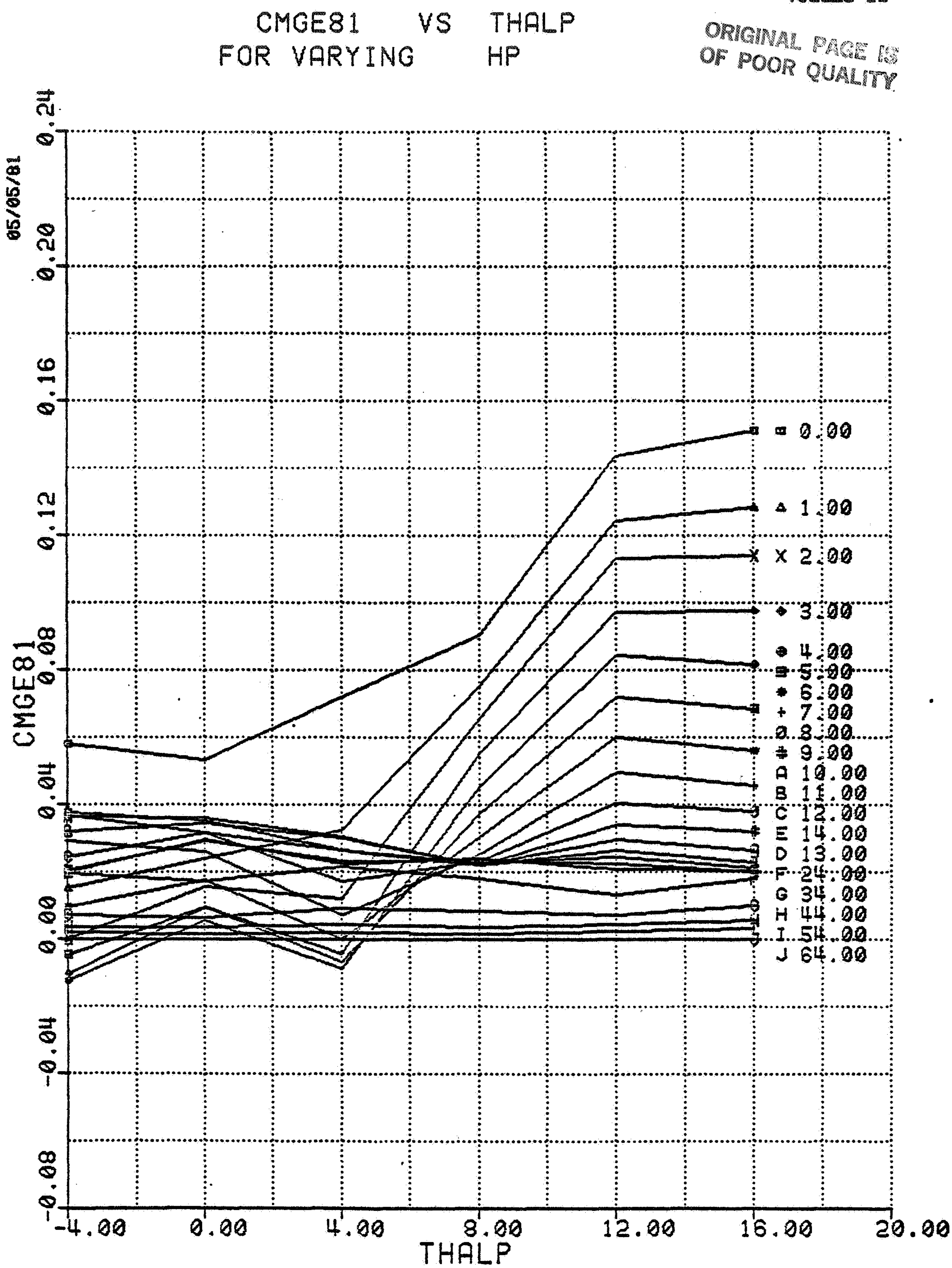
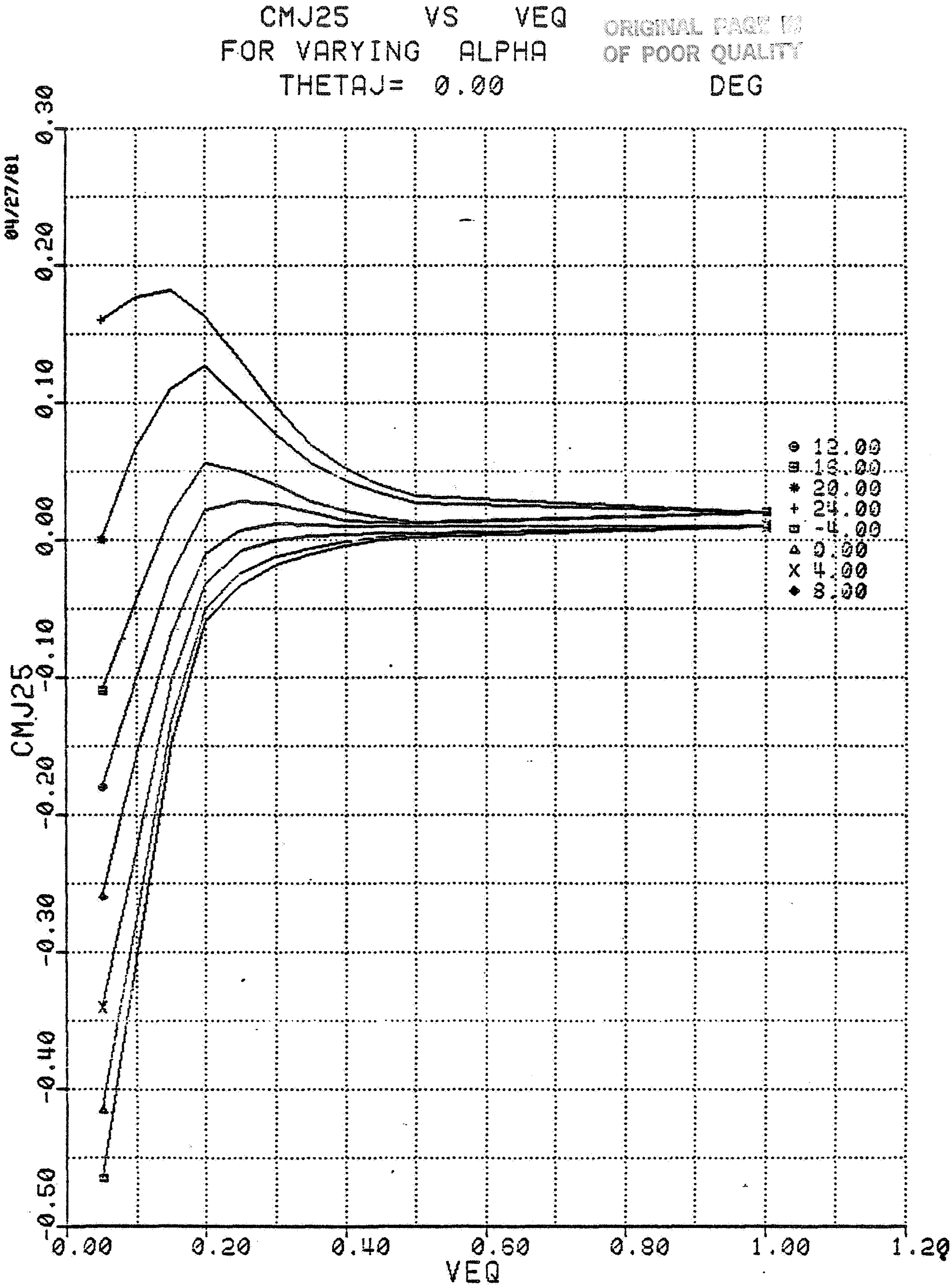
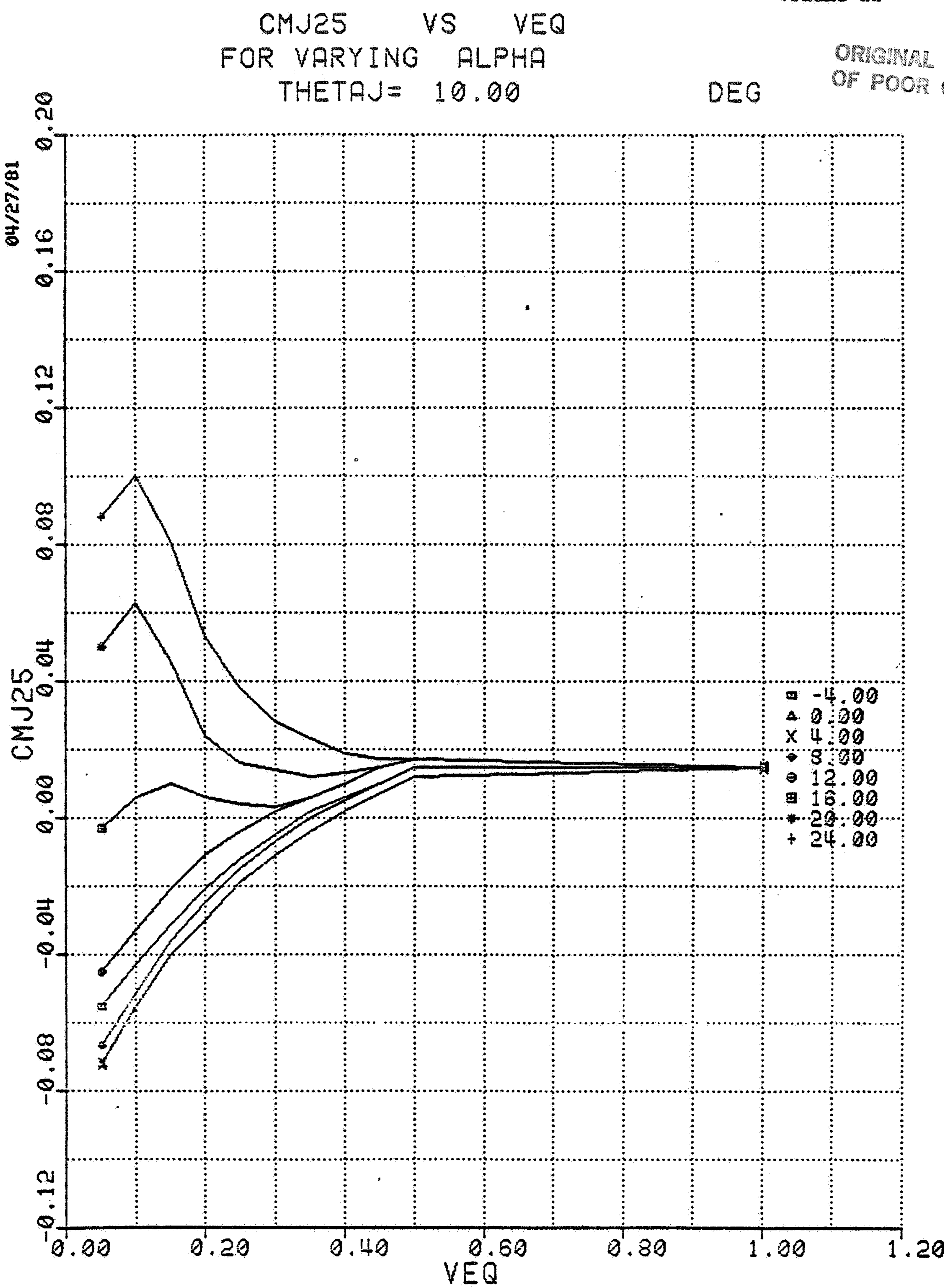
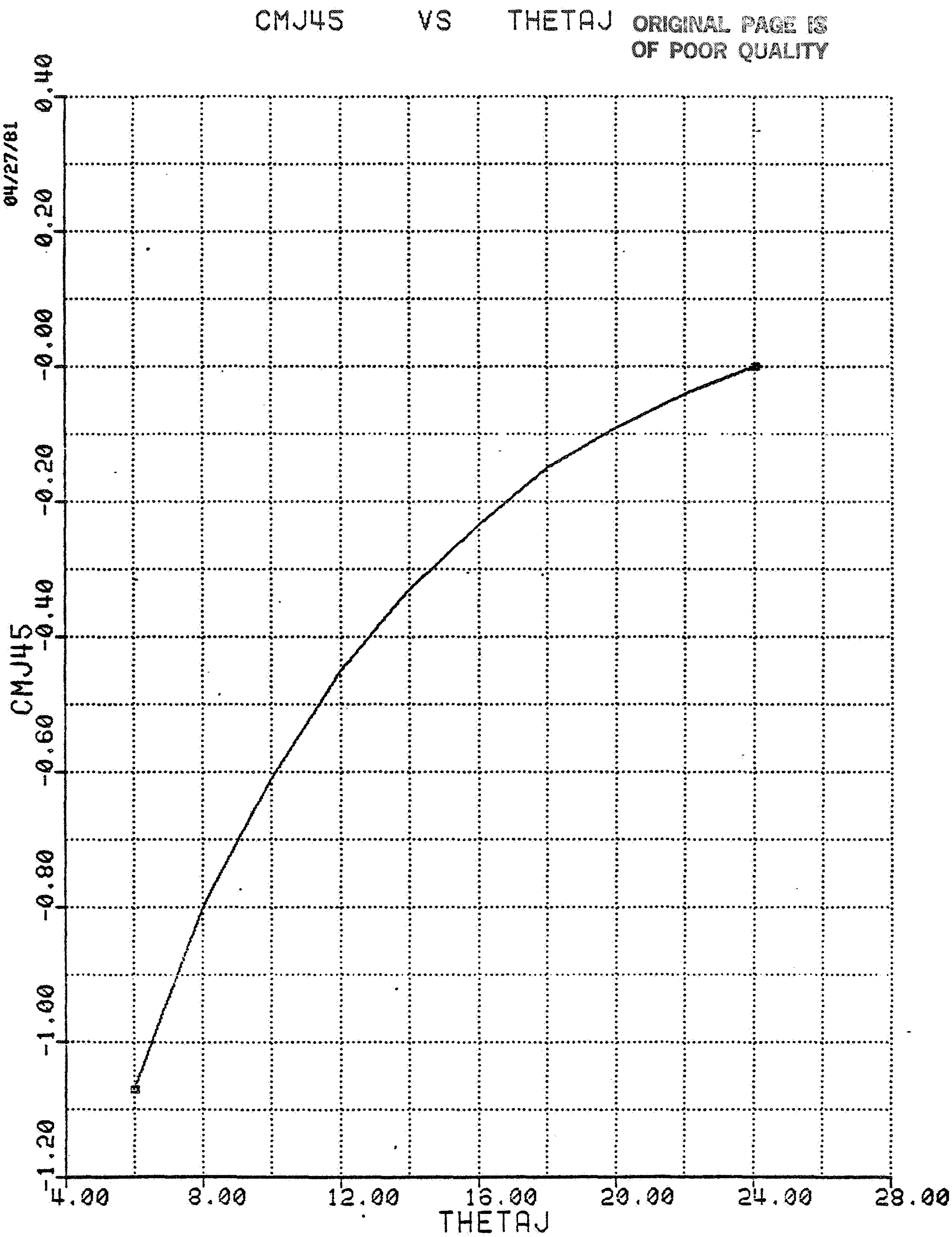
8.00
6.00
4.00
2.00
0.00


CMGE81 VS THALP
FOR VARYING HP
05/05/81
CMGE81
THALP
0.24
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
A 10.00
B 11.00
C 12.00
E 14.00
D 13.00
F 24.00
G 34.00
H 44.00
I 54.00
J 64.00


CMJ25 VS VEQ
FOR VARYING ALPHA
THETAJ= 0.00 DEG
04/27/81
CMJ25
VEQ
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
0.00
0.20
0.40
0.60
0.80
1.00
1.20
12.00
16.00
20.00
24.00
-4.00
0.00
4.00
8.00


CMJ25 VS VEQ
FOR VARYING ALPHA
THETAJ= 10.00 DEG
04/27/81
CMJ25
VEQ
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
0.00
0.20
0.40
0.60
0.80
1.00
1.20
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00


CMJ45 VS THETAJ
04/27/81
0.40
0.20
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
CMJ45
4.00
8.00
12.00
16.00
20.00
24.00
28.00
THETAJ

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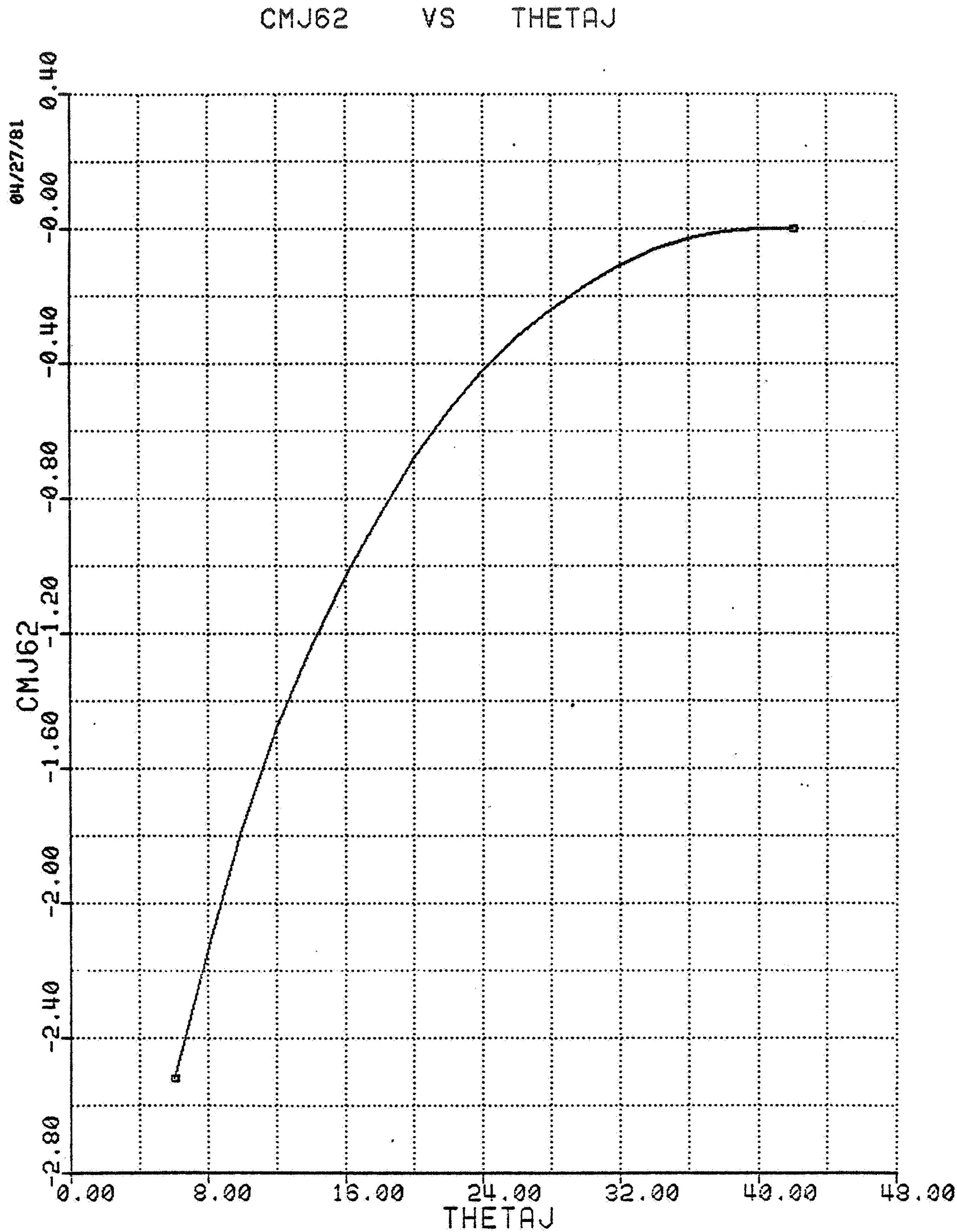

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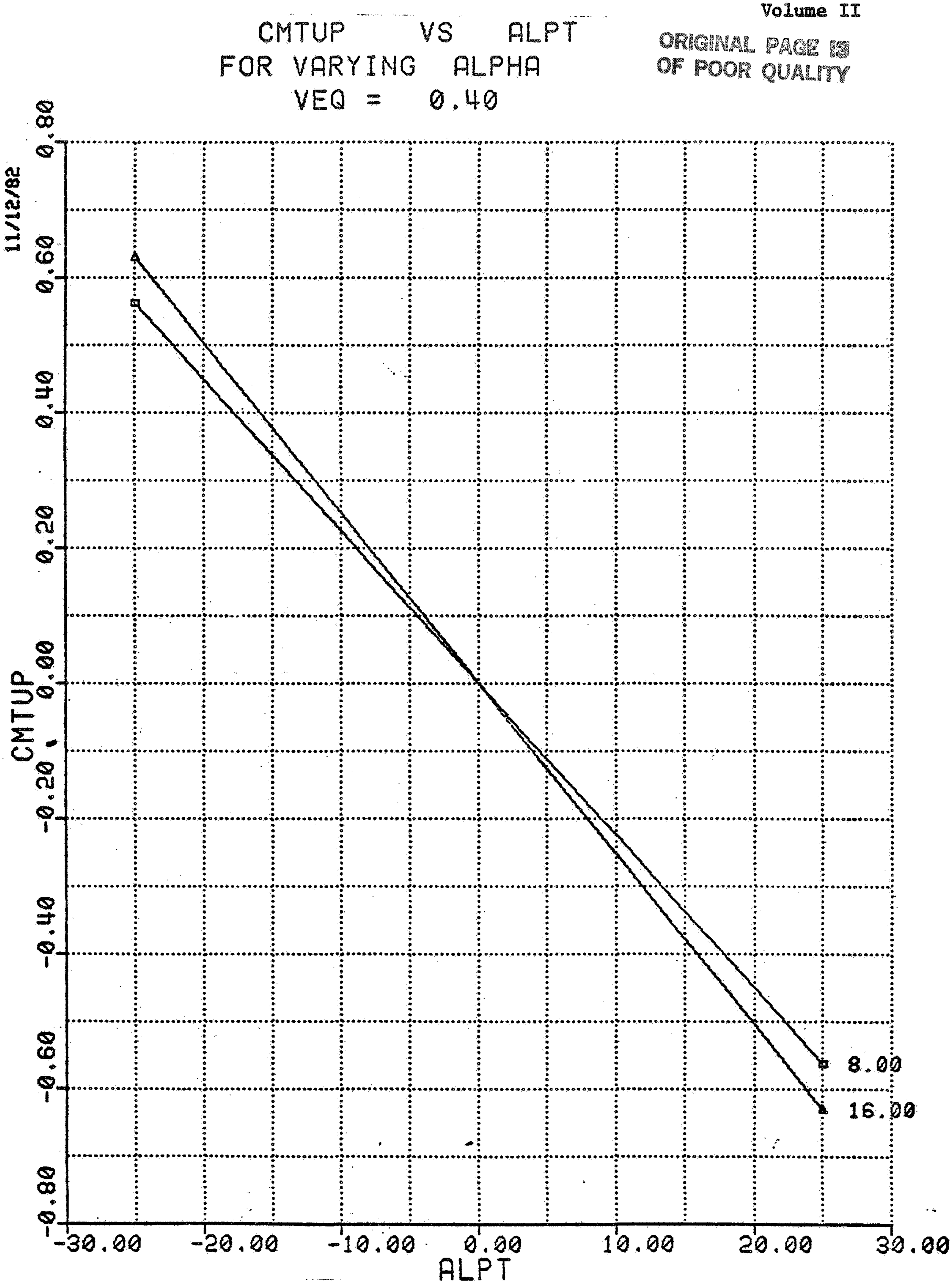
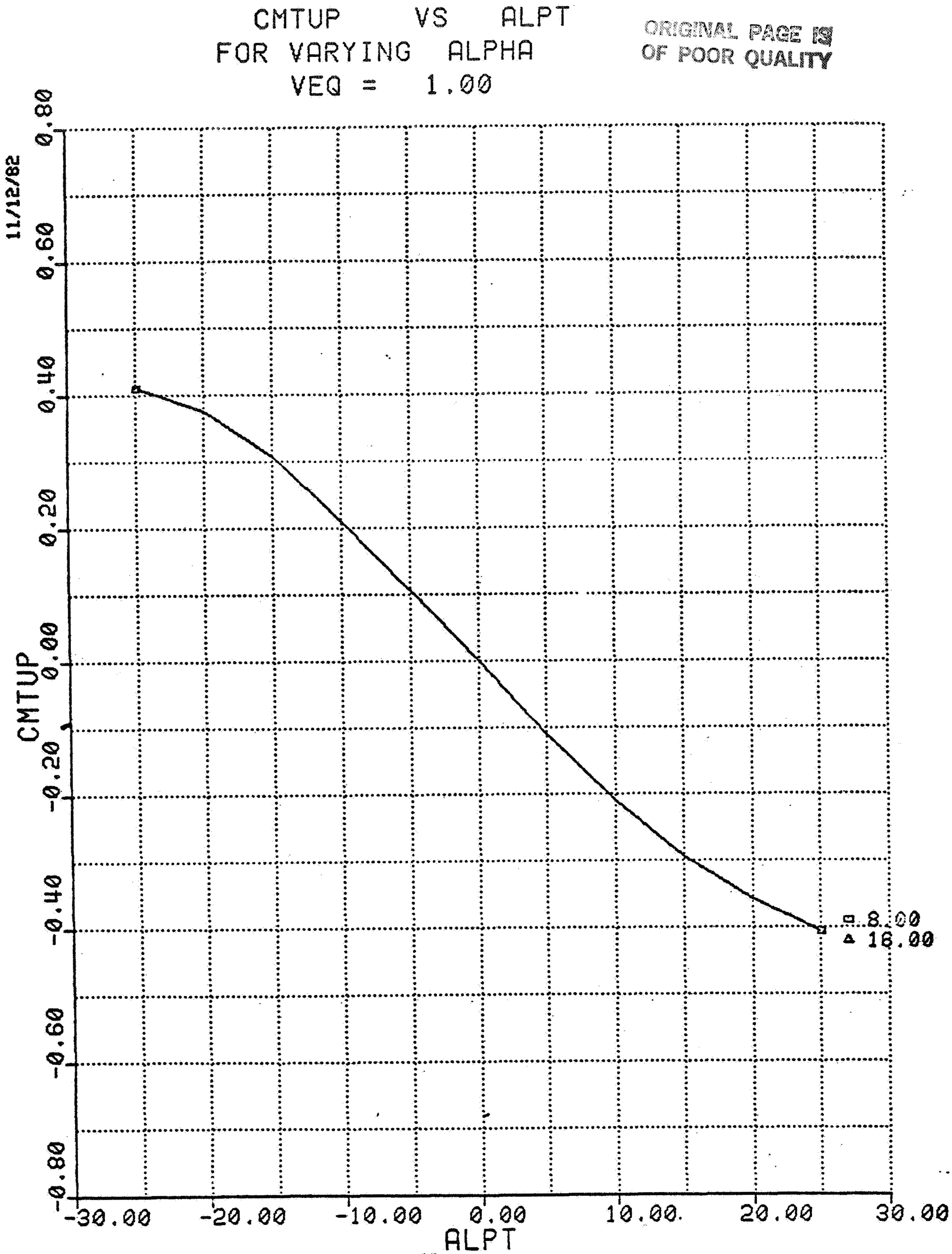
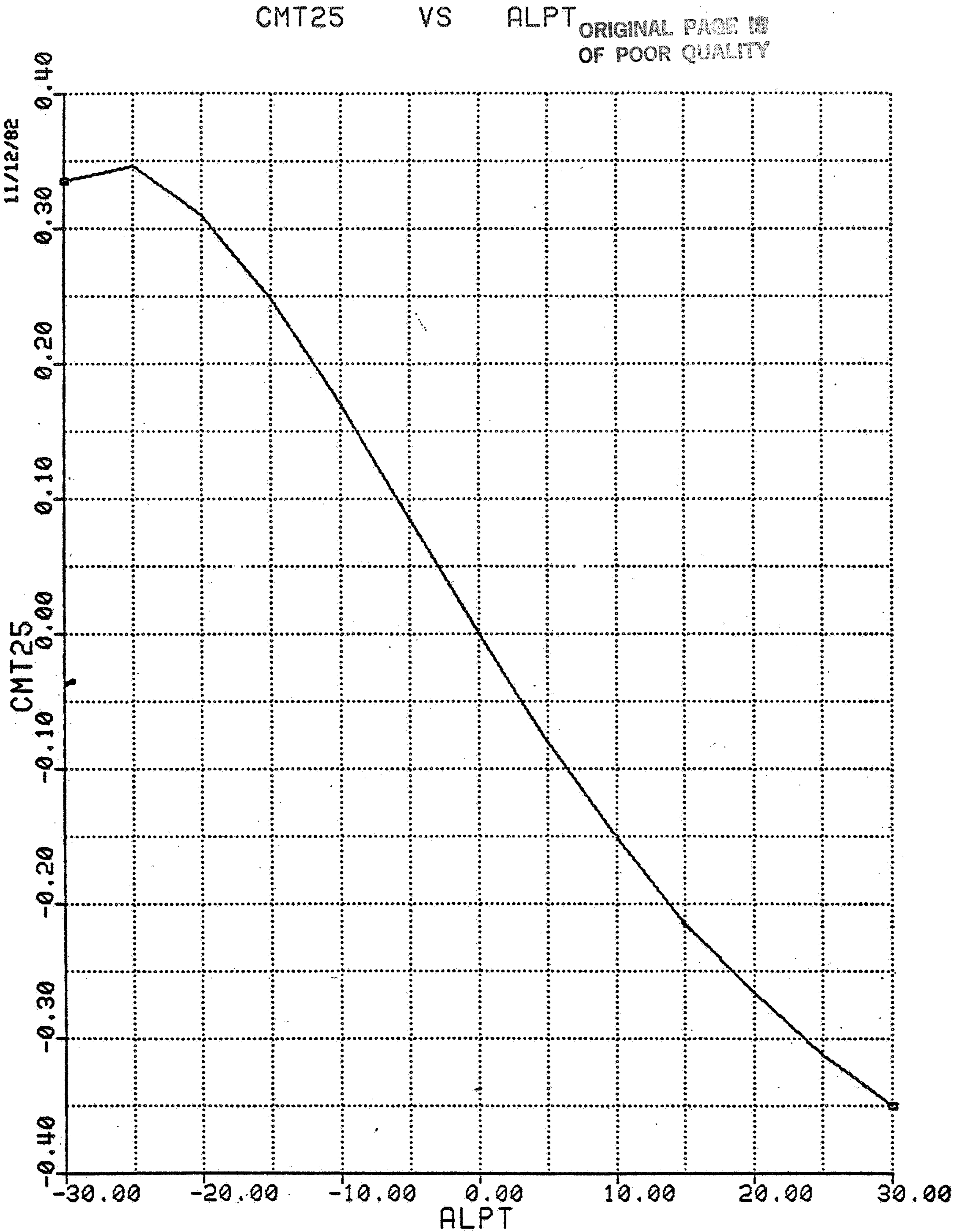
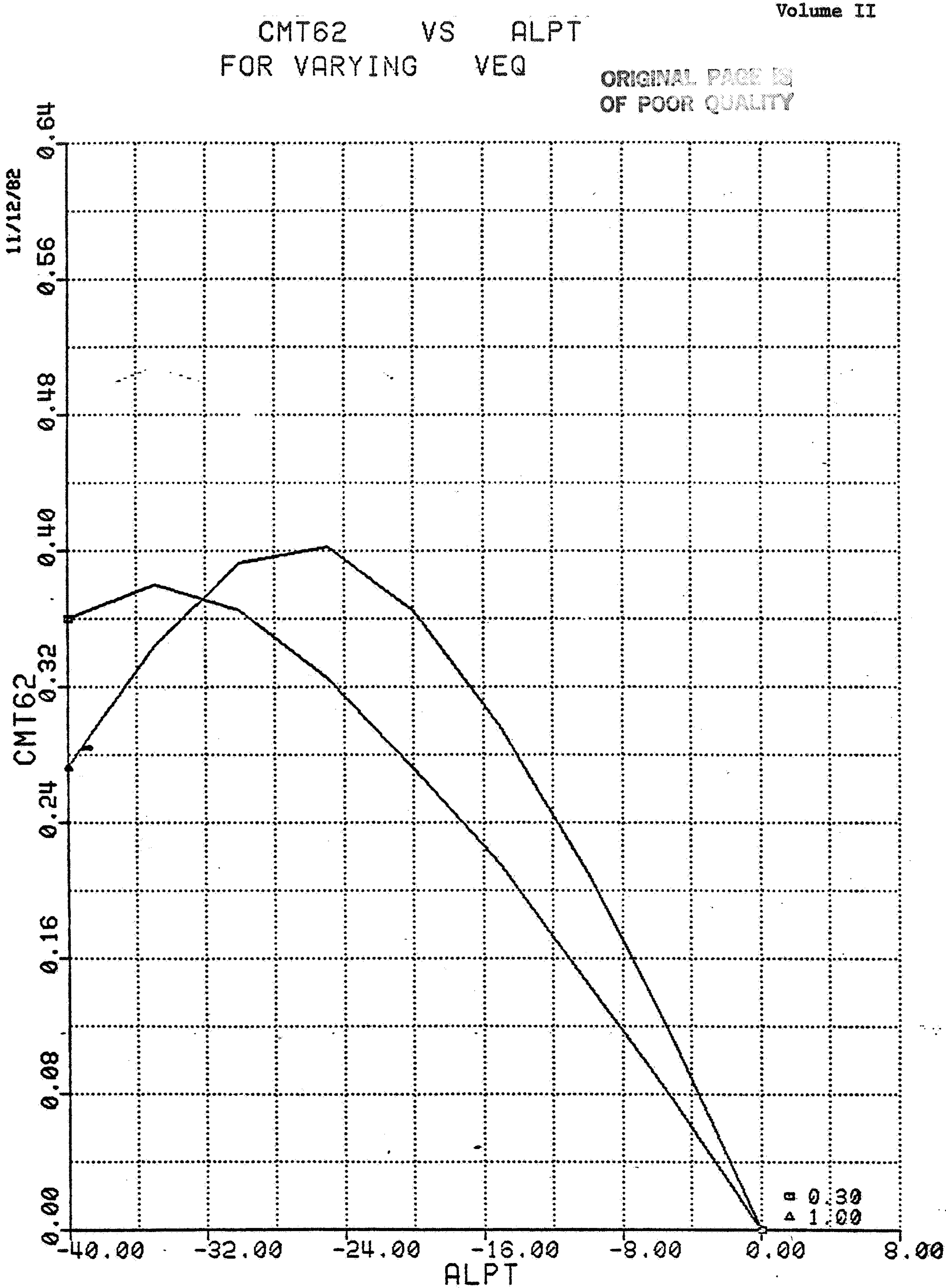
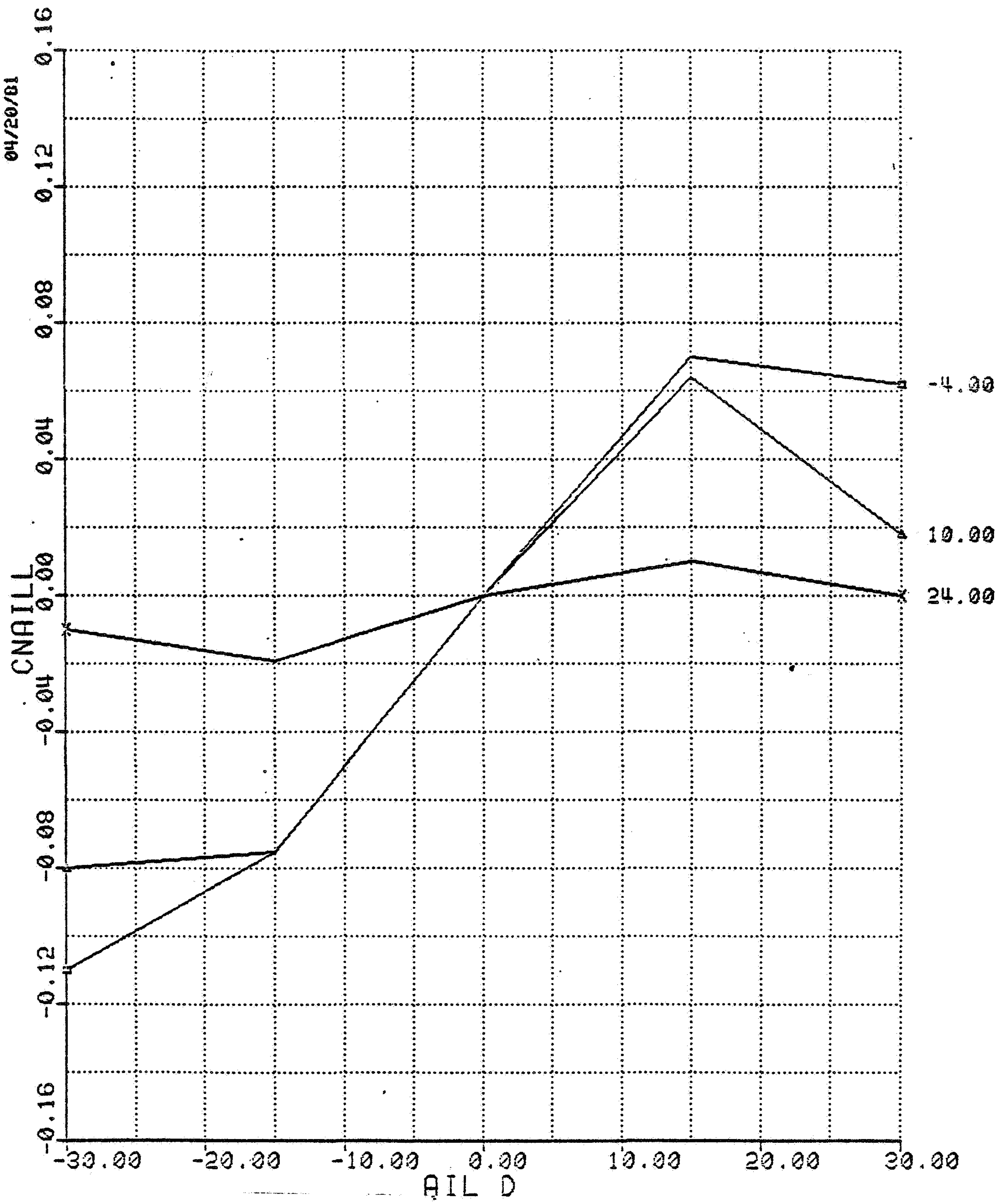

CMTUP VS ALPT
FOR VARYING ALPHA
VEQ = 0.40
11/12/82
CMTUP
ALPT
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-30.00
-20.00
-10.00
0.00
10.00
20.00
30.00
8.00
16.00


CMTUP VS ALPT
FOR VARYING ALPHA
VEQ = 1.00
11/12/82
CMTUP
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-30.00
-20.00
-10.00
0.00
10.00
20.00
30.00
ALPT
8.00
16.00

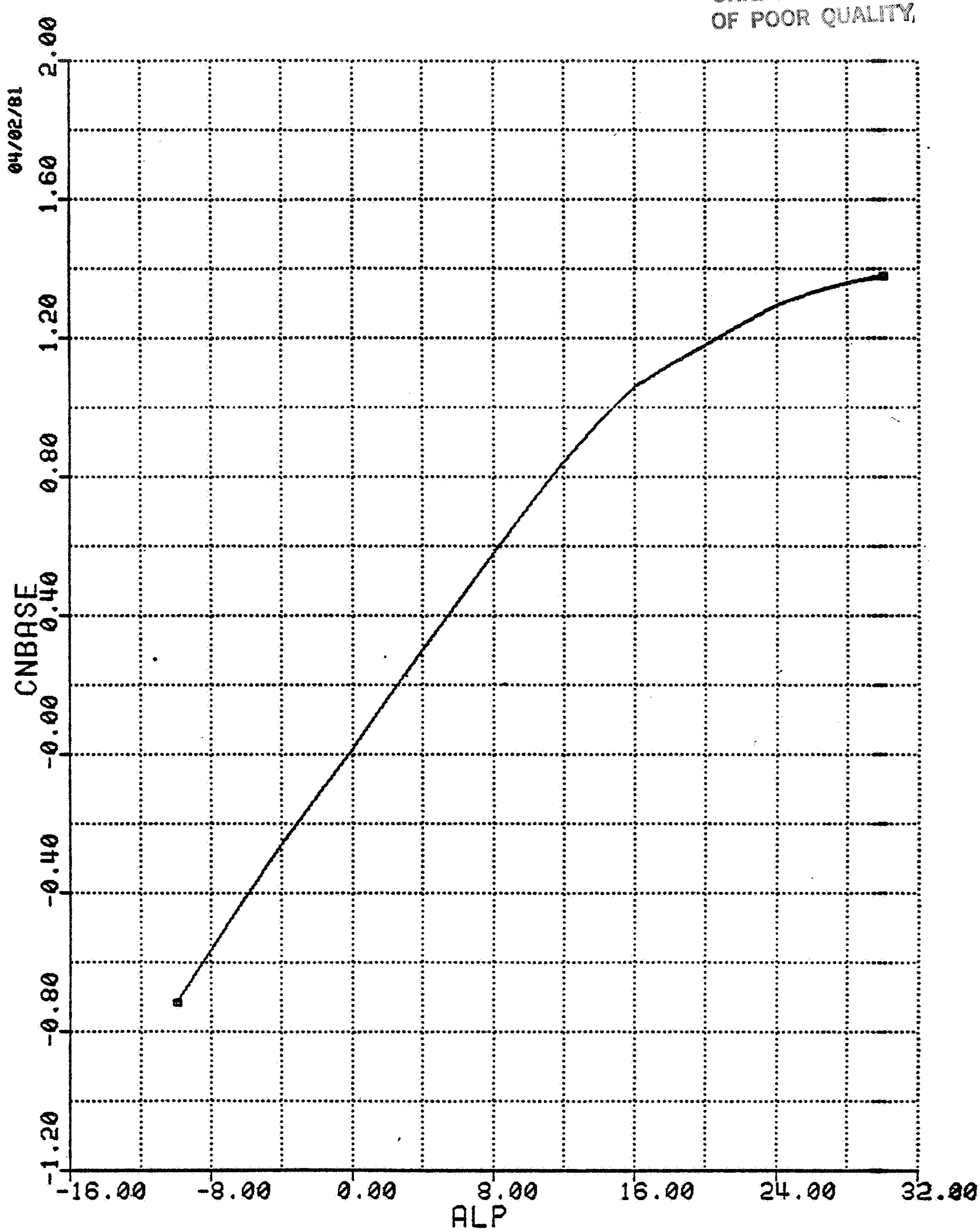

CMT25 VS ALPT
11/12/82
CMT25
ALPT
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-30.00
-20.00
-10.00
0.00
10.00
20.00
30.00


CMT62 VS ALPT
FOR VARYING VEQ
11/12/82
CMT62
0.64
0.56
0.48
0.40
0.32
0.24
0.16
0.08
0.00
-40.00
-32.00
-24.00
-16.00
-8.00
0.00
8.00
ALPT
0.30
1.00

CNAILL VS AIL D
FOR VARYING ALPHA



CNBASE VS ALP



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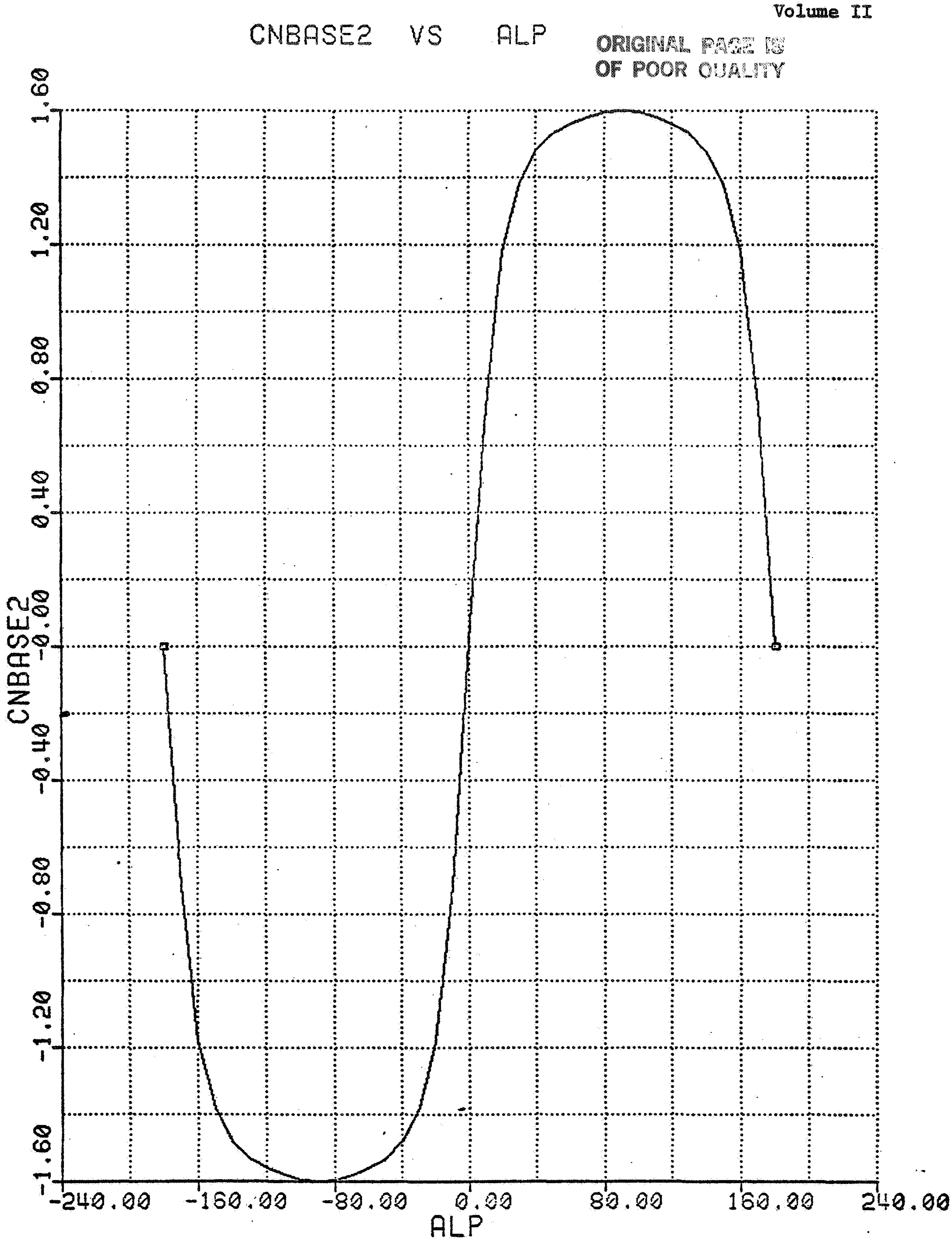
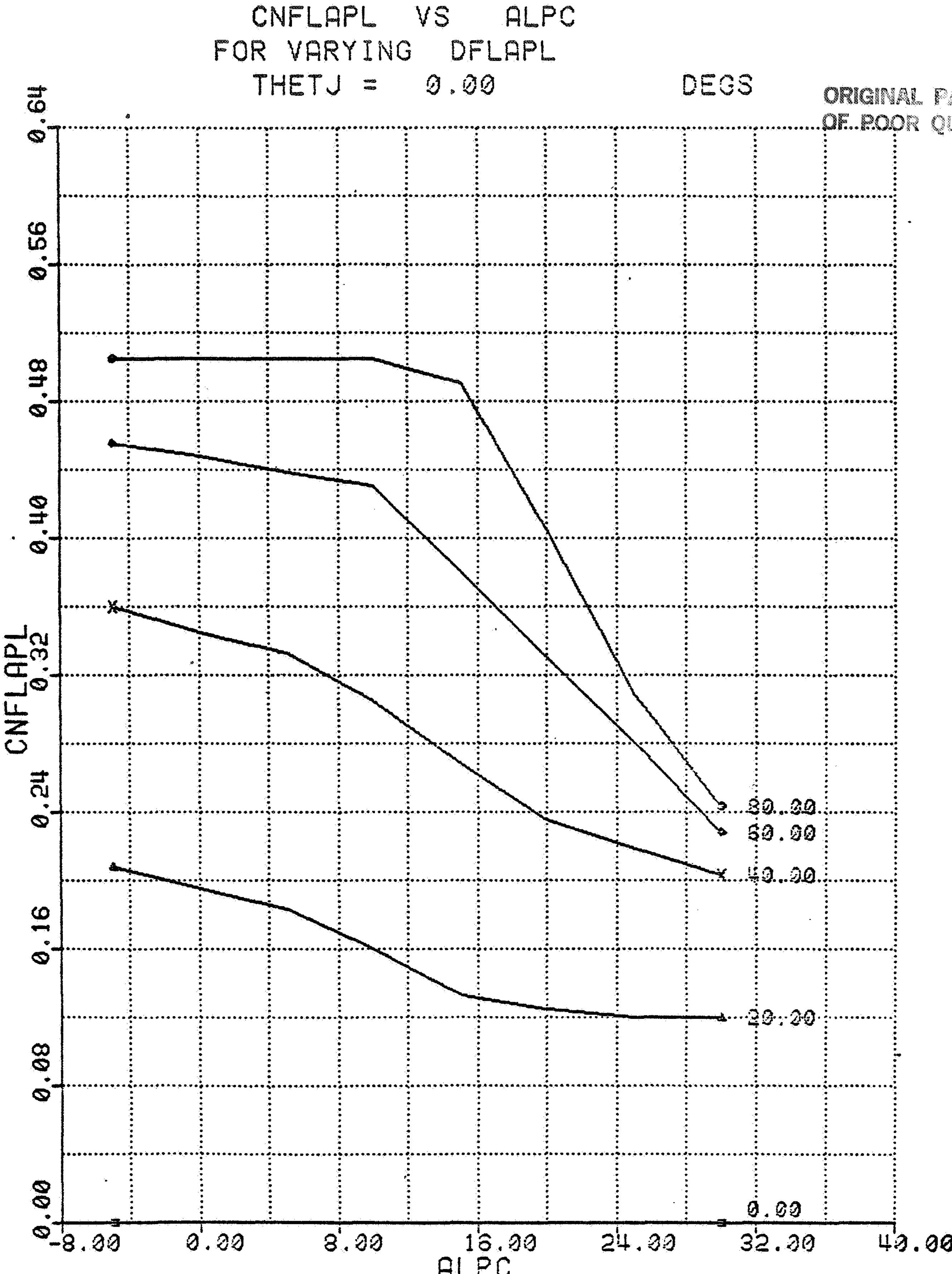
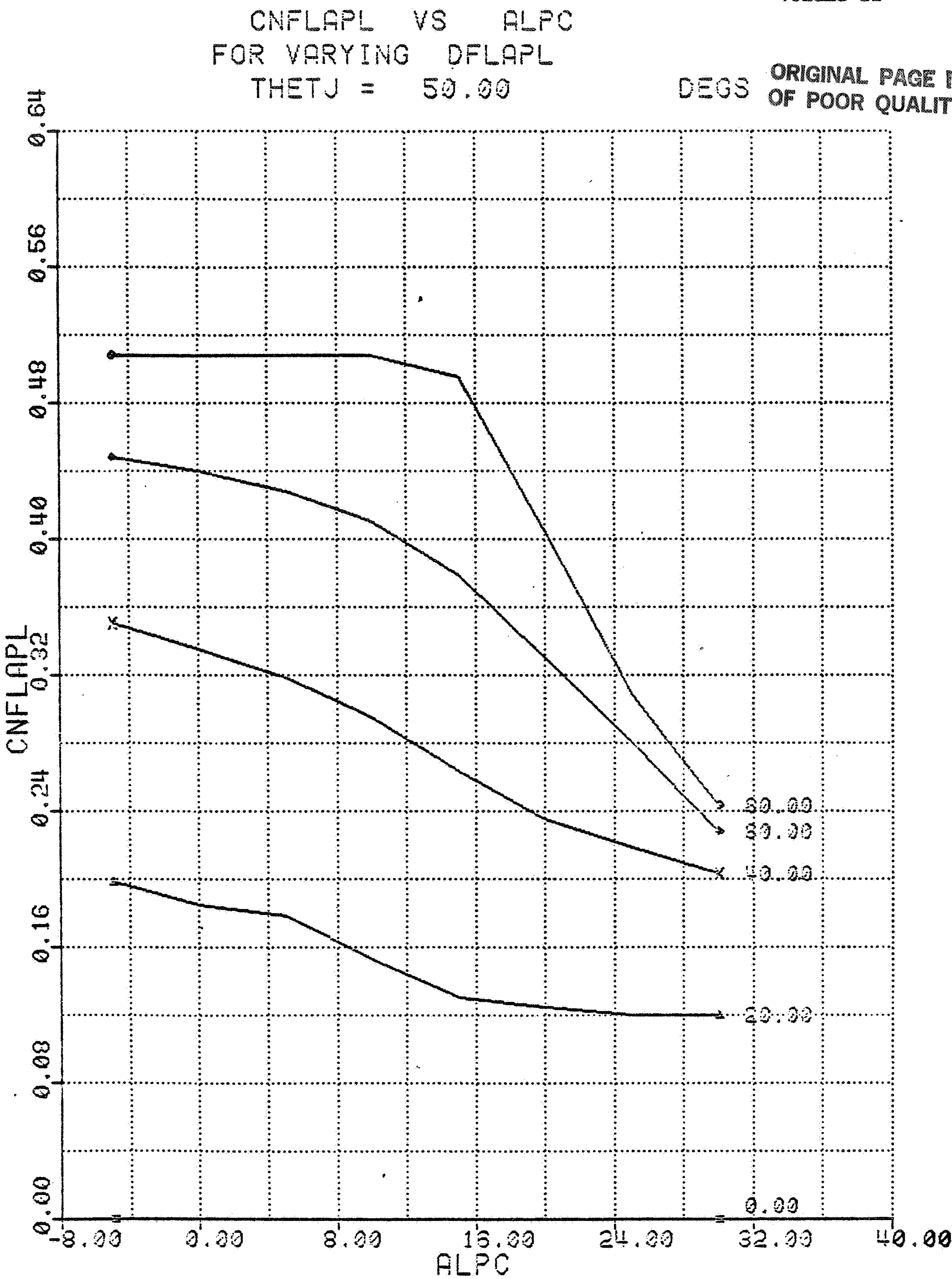
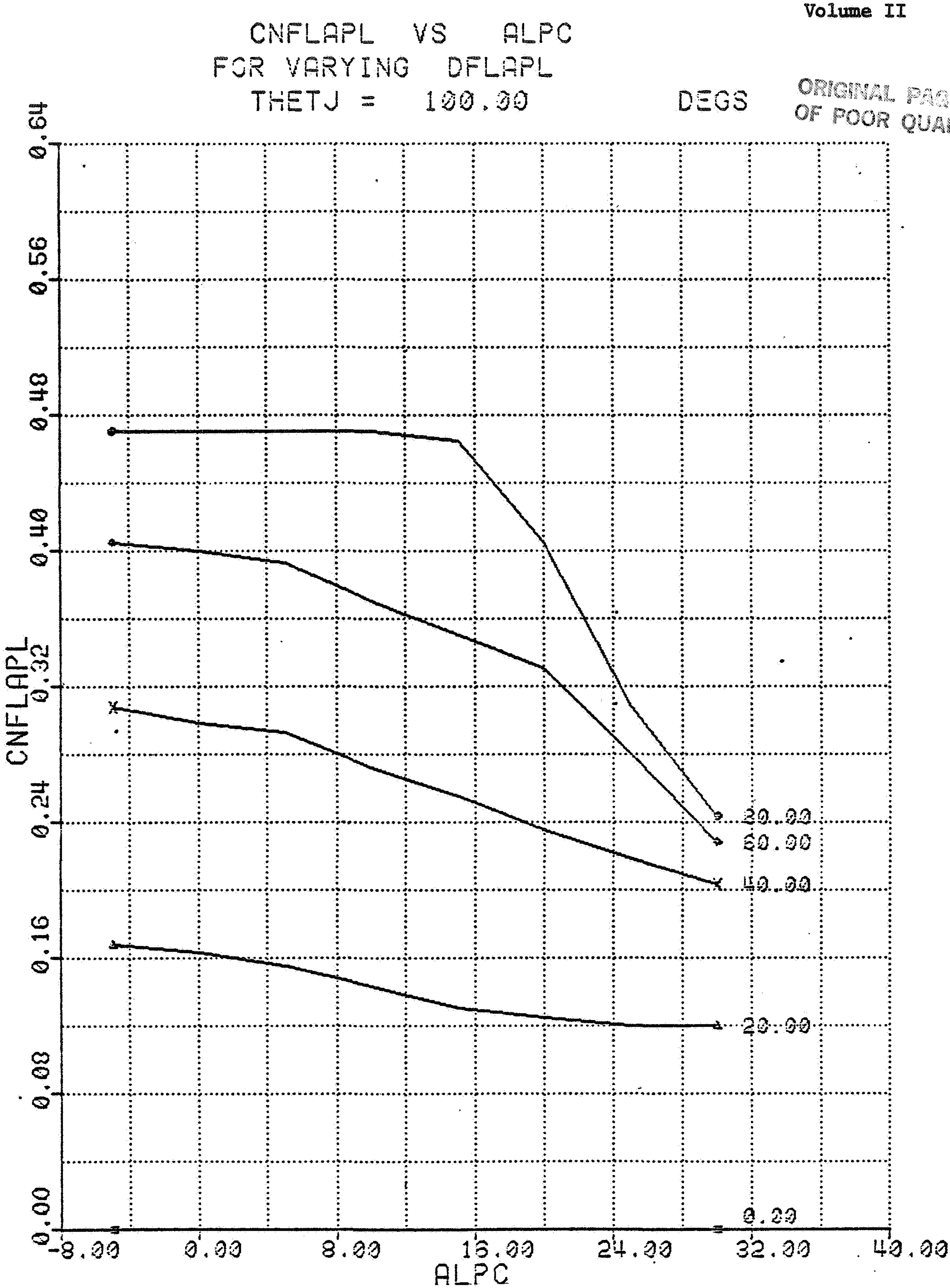



CNFLAPL VS ALPC
FOR VARYING DFLAPL
THETJ = 0.00 DEGS
CNFLAPL
ALPC
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
-8.00
0.00
8.00
16.00
24.00
32.00
40.00
30.00
60.00
40.00
20.00
0.00


CNFLAPL VS ALPC
FOR VARYING DFLAPL
THETJ = 50.00 DEGS
CNFLAPL
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
-8.00
0.00
8.00
16.00
24.00
32.00
40.00
ALPC
60.00
30.00
40.00
20.00
0.00


CNFLAPL VS ALPC
FOR VARYING DFLAPL
THETJ = 100.00 DEGS
CNFLAPL
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
ALPC
-8.00
0.00
8.00
16.00
24.00
32.00
40.00
80.00
60.00
40.00
20.00
0.00

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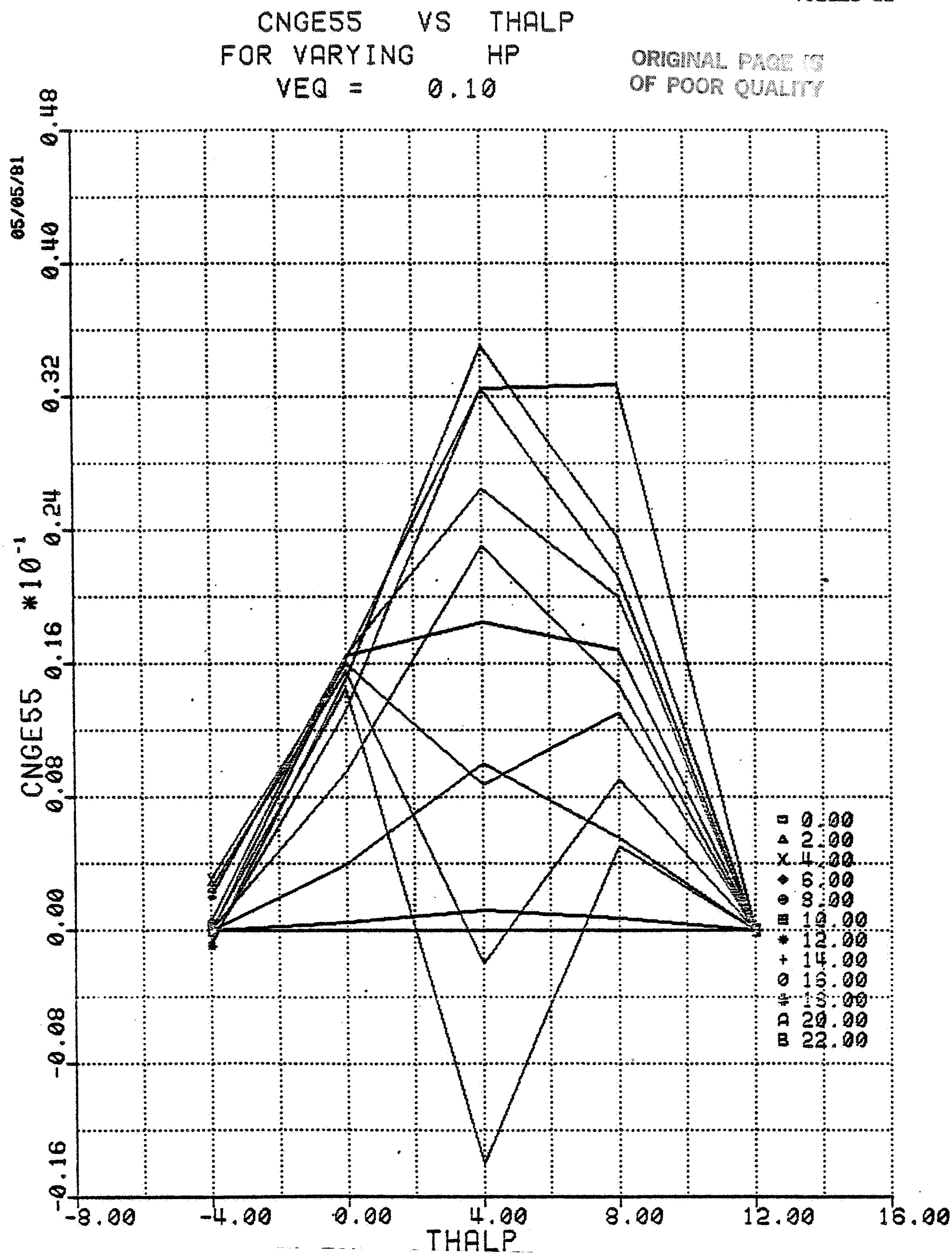
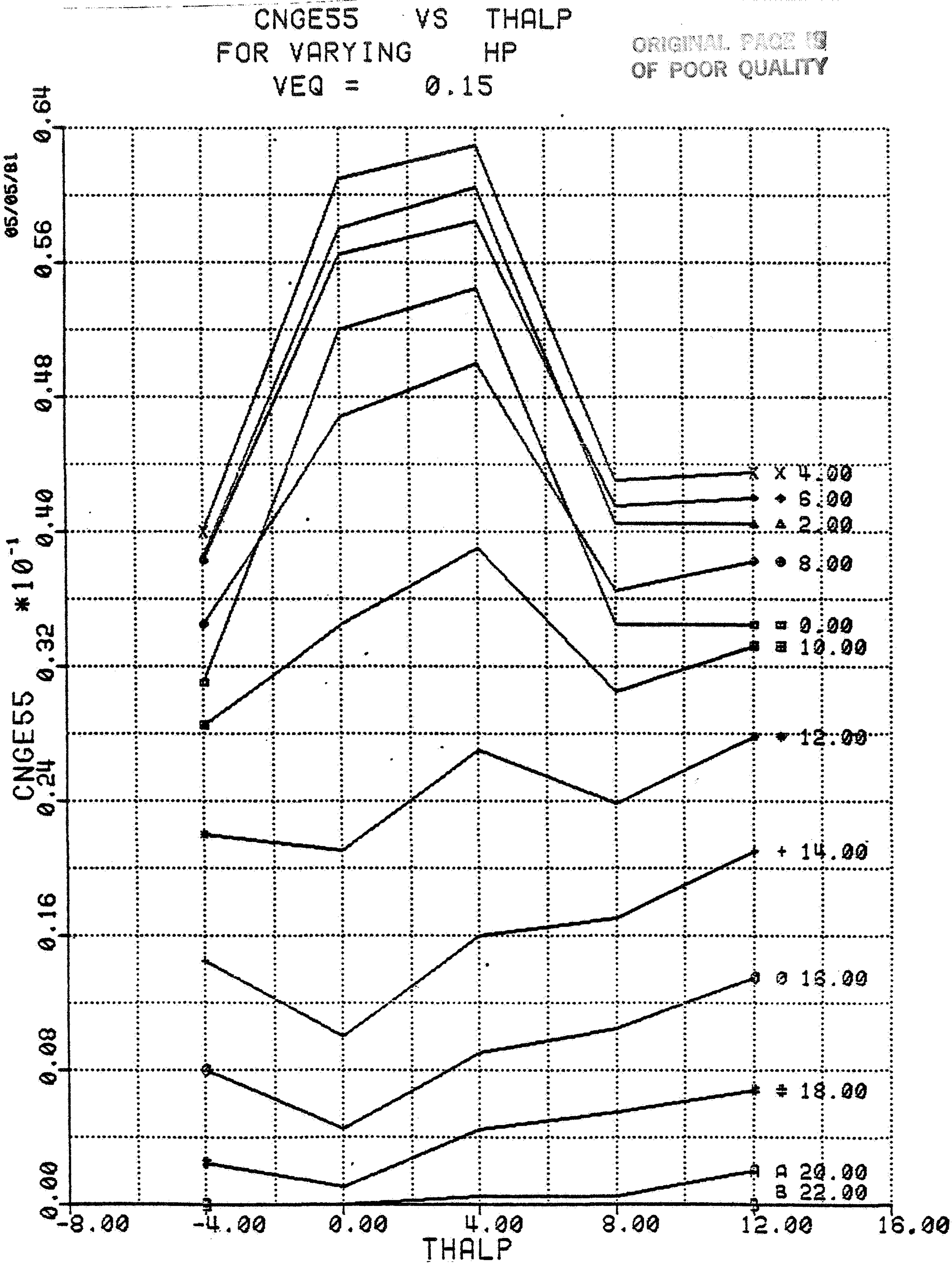
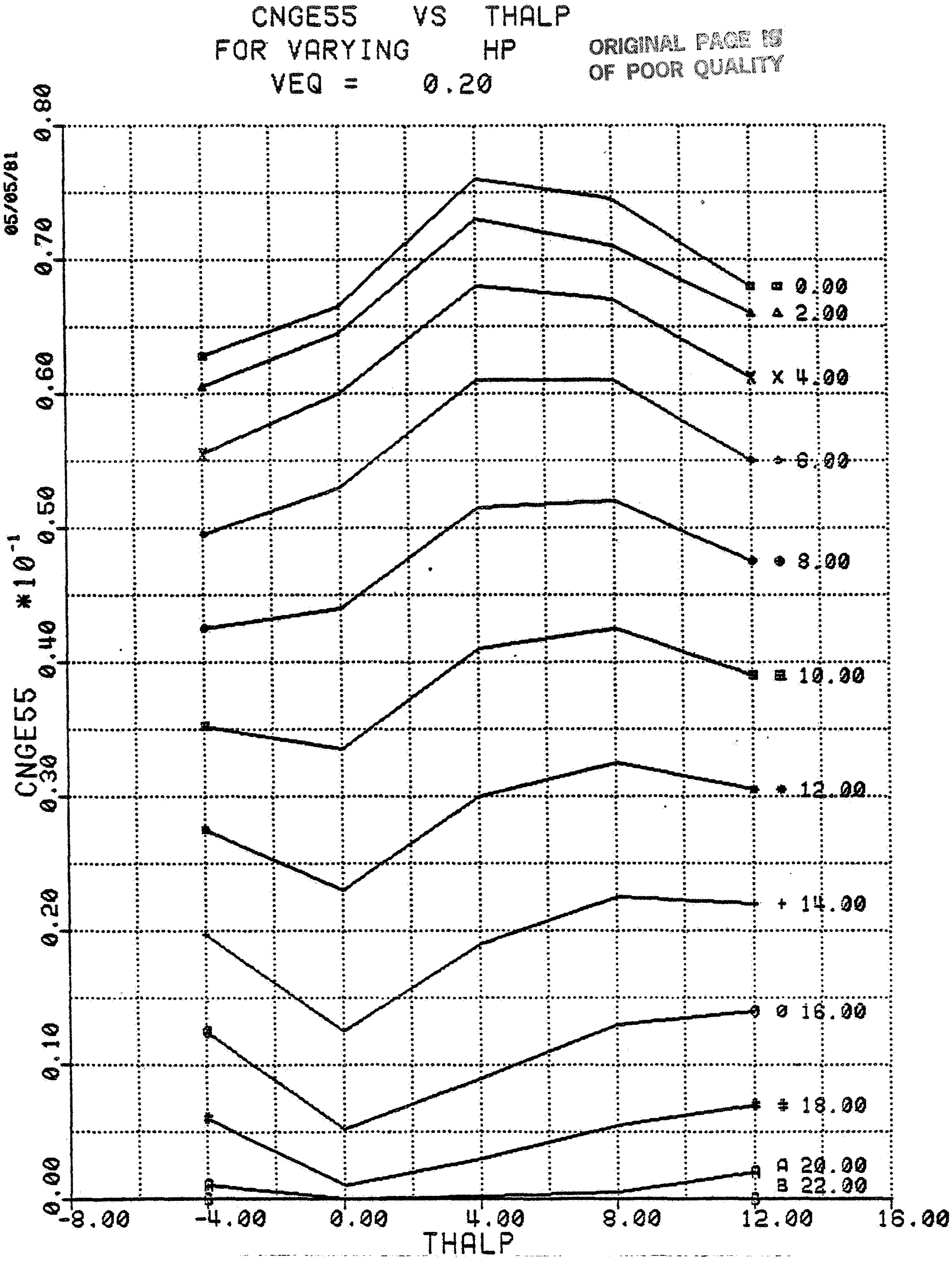
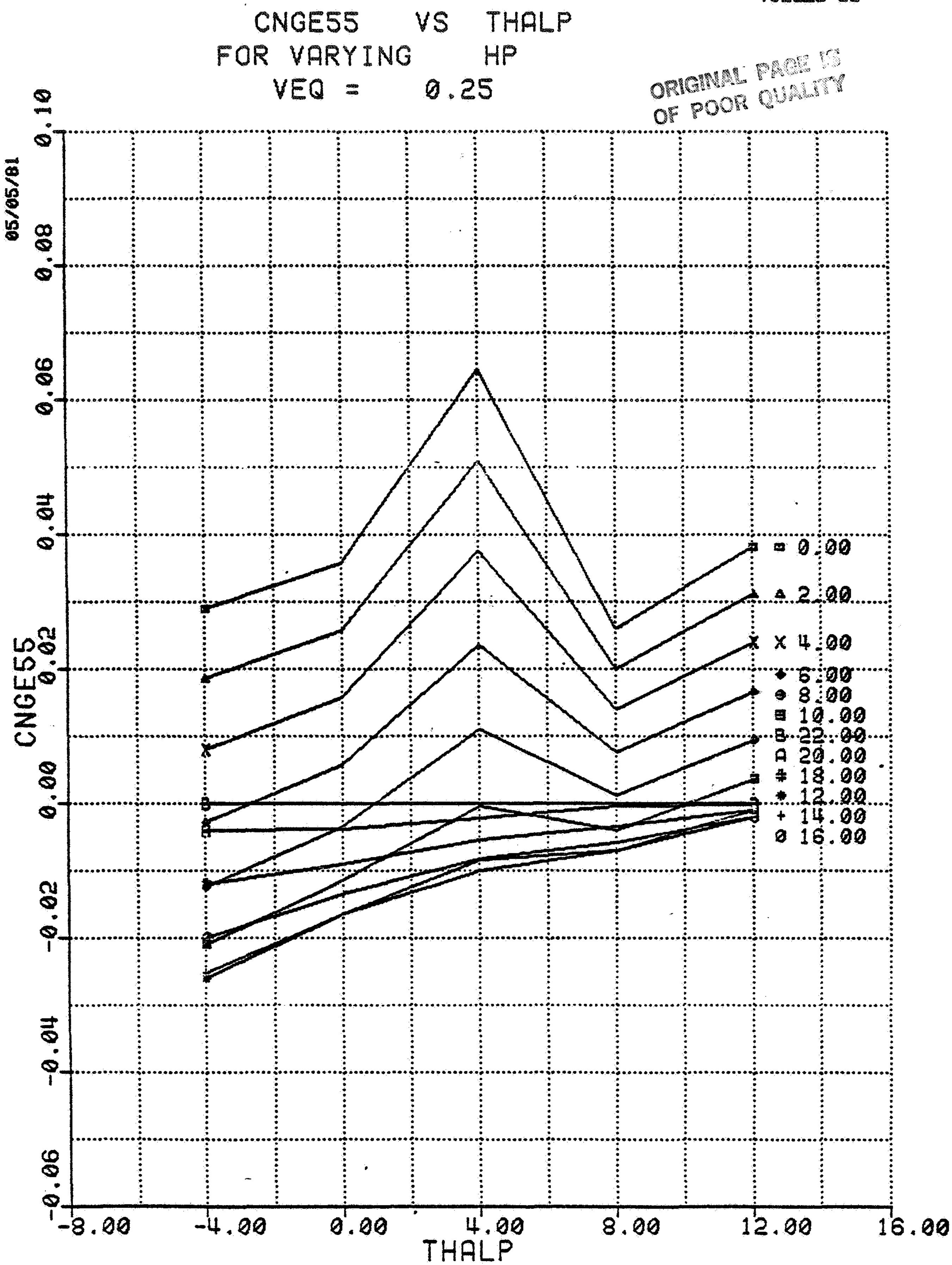
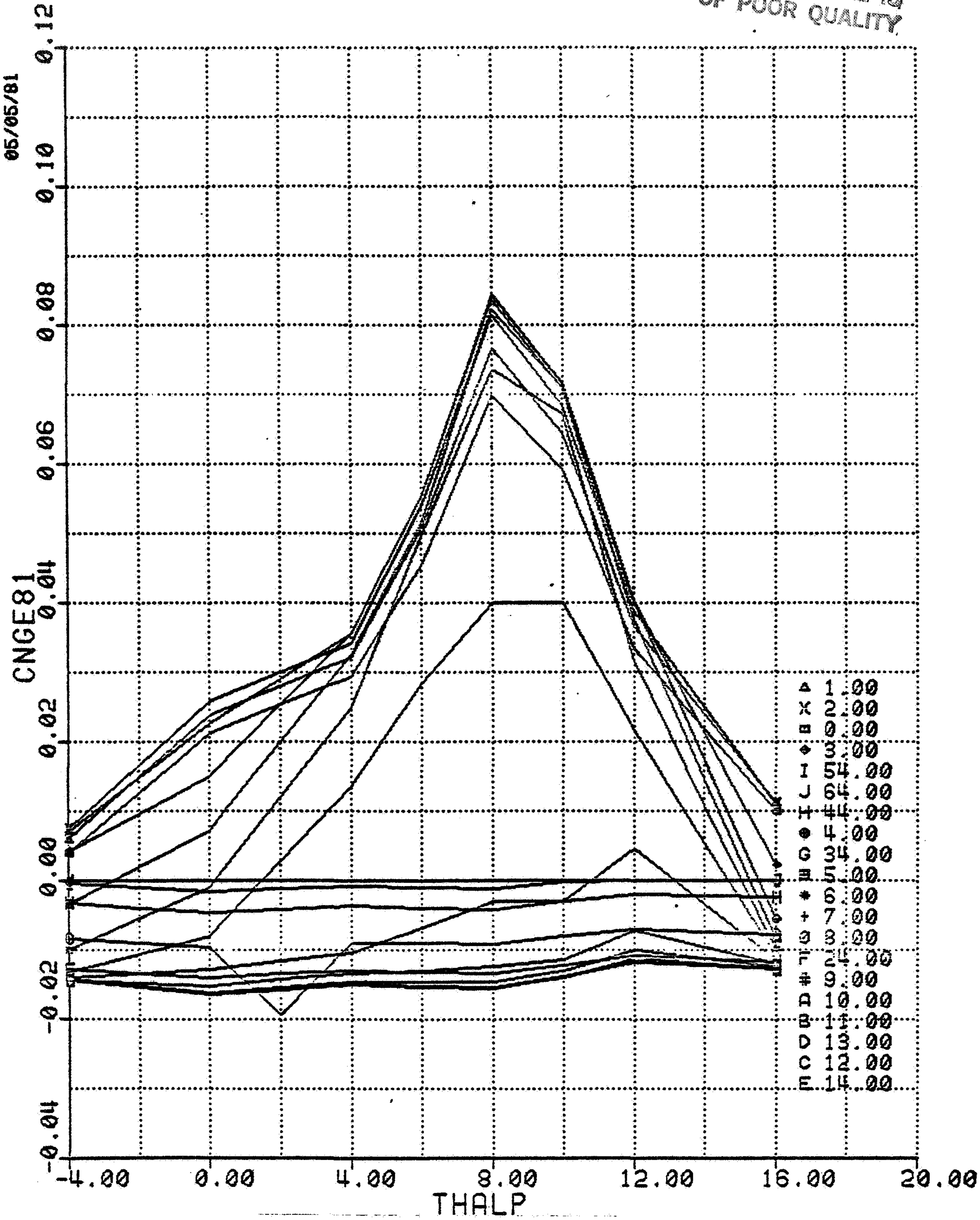


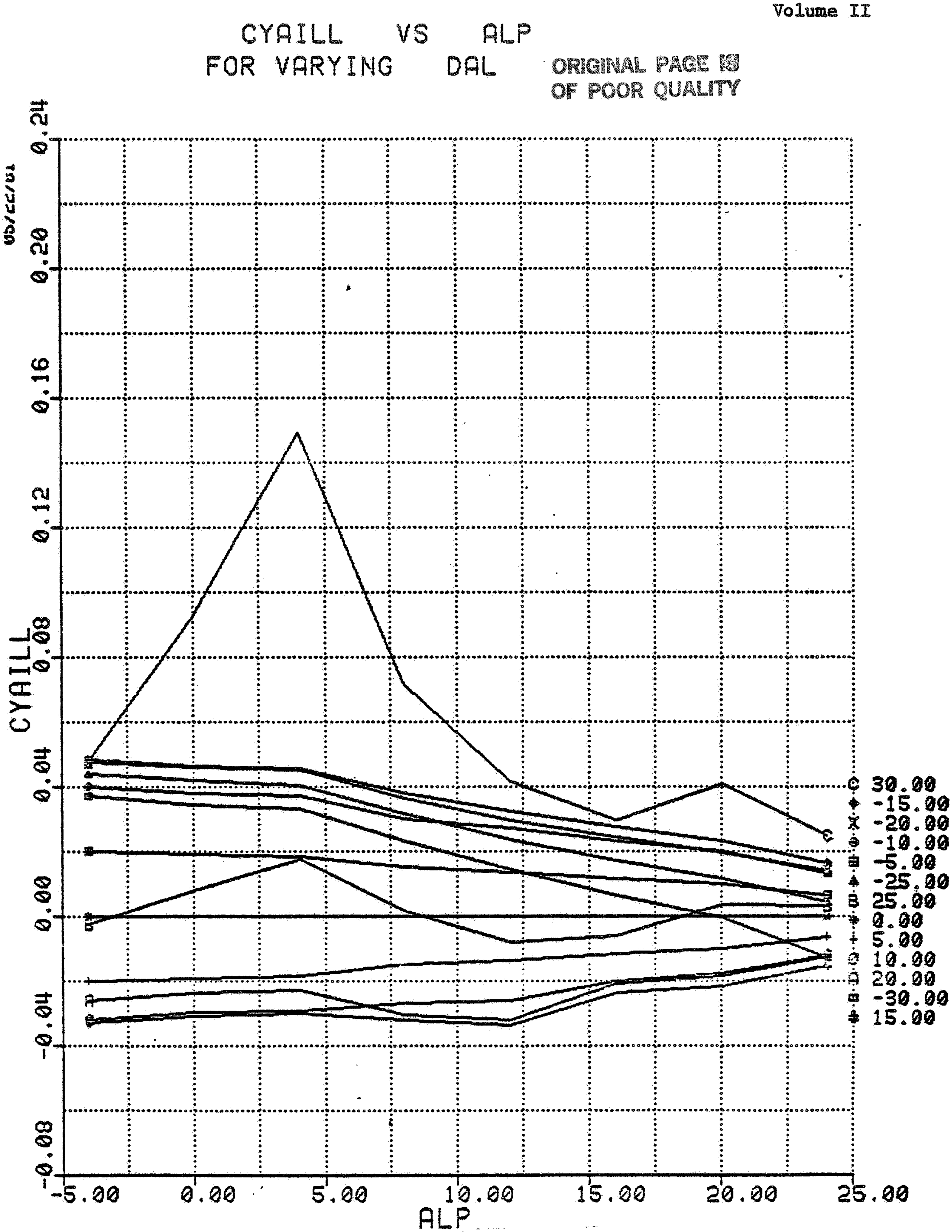

CNGE55 VS THALP
FOR VARYING HP
VEQ = 0.15
05/05/81
CNGE55 *10^-1
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
THALP
X 4.00
6.00
2.00
8.00
0.00
10.00
12.00
+ 14.00
16.00
18.00
A 20.00
B 22.00


CNGE55 VS THALP
FOR VARYING HP
VEQ = 0.20
ORIGINAL PAGE IS
OF POOR QUALITY
05/05/81
CNGE55 *10⁻¹
THALP
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
A 20.00
B 22.00


CNGE55 VS THALP
FOR VARYING HP
VEQ = 0.25
05/05/81
CNGE55
THALP
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
0.00
2.00
4.00
6.00
8.00
10.00
22.00
20.00
18.00
12.00
14.00
16.00

CNGE81 VS THALP
FOR VARYING HP




CYAILL VS ALP
FOR VARYING DAL
CYAILL
ALP
0.24
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
-15.00
-20.00
-10.00
-5.00
-25.00
25.00
0.00
5.00
10.00
20.00
-30.00
15.00

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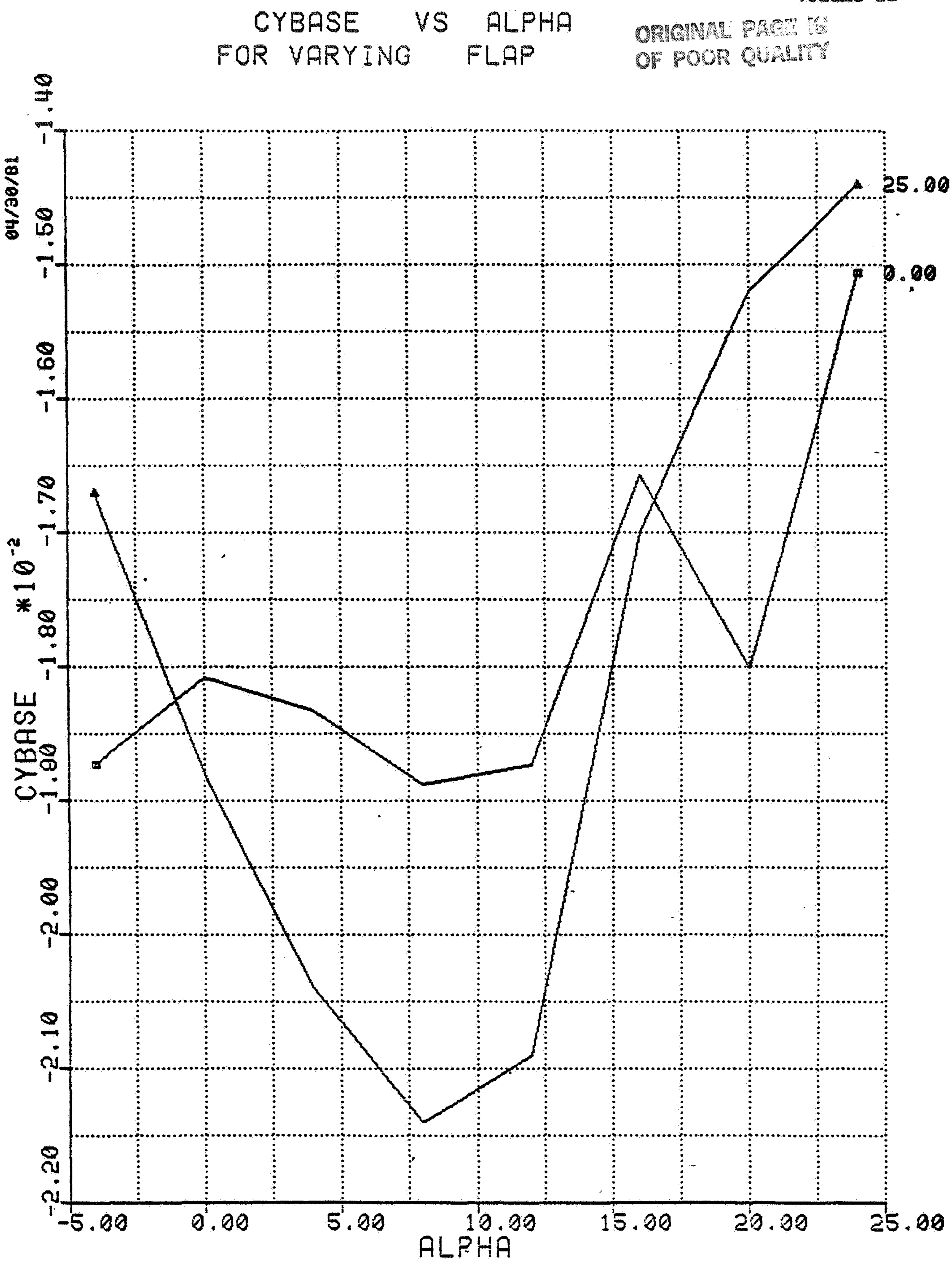
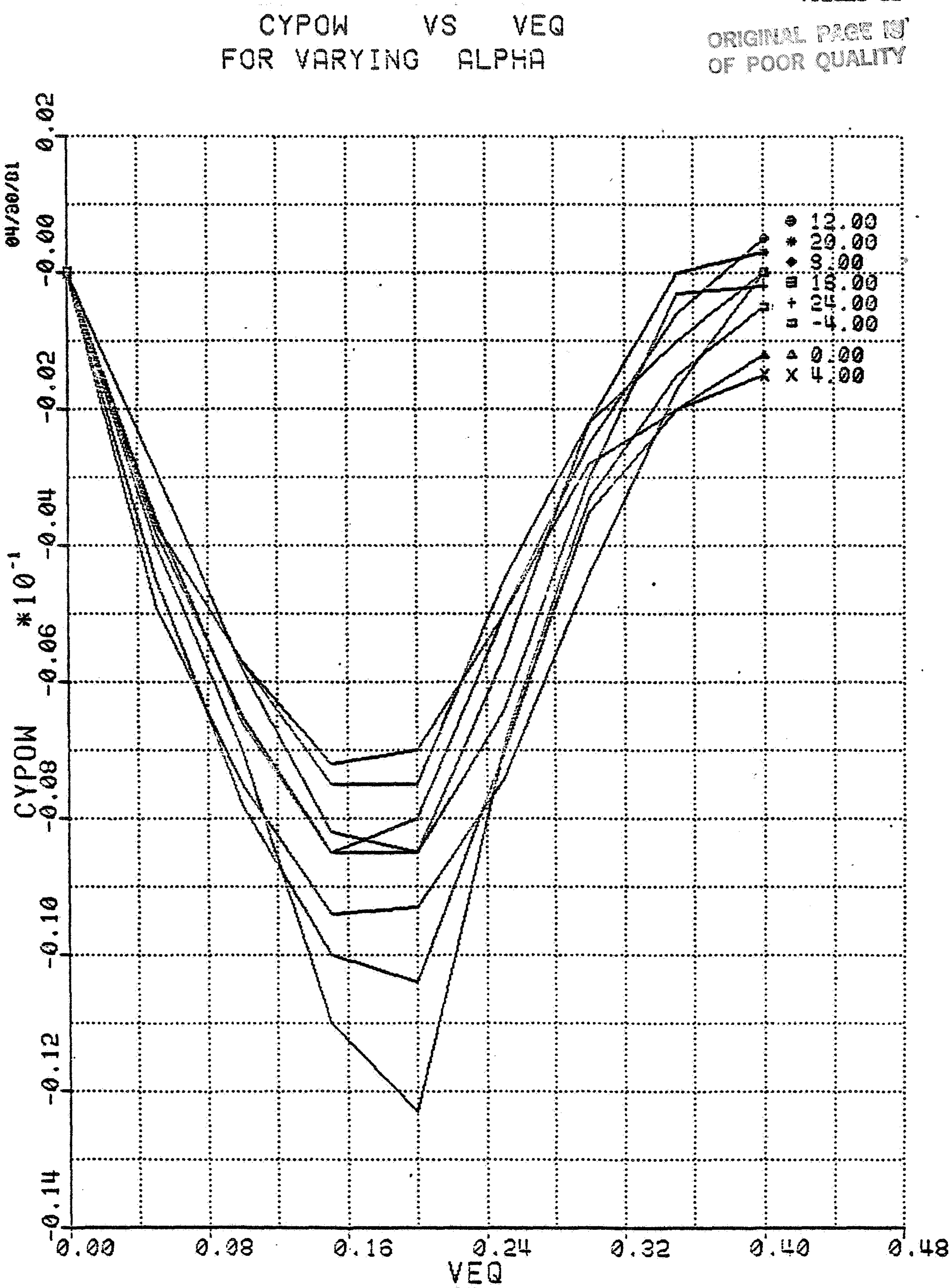
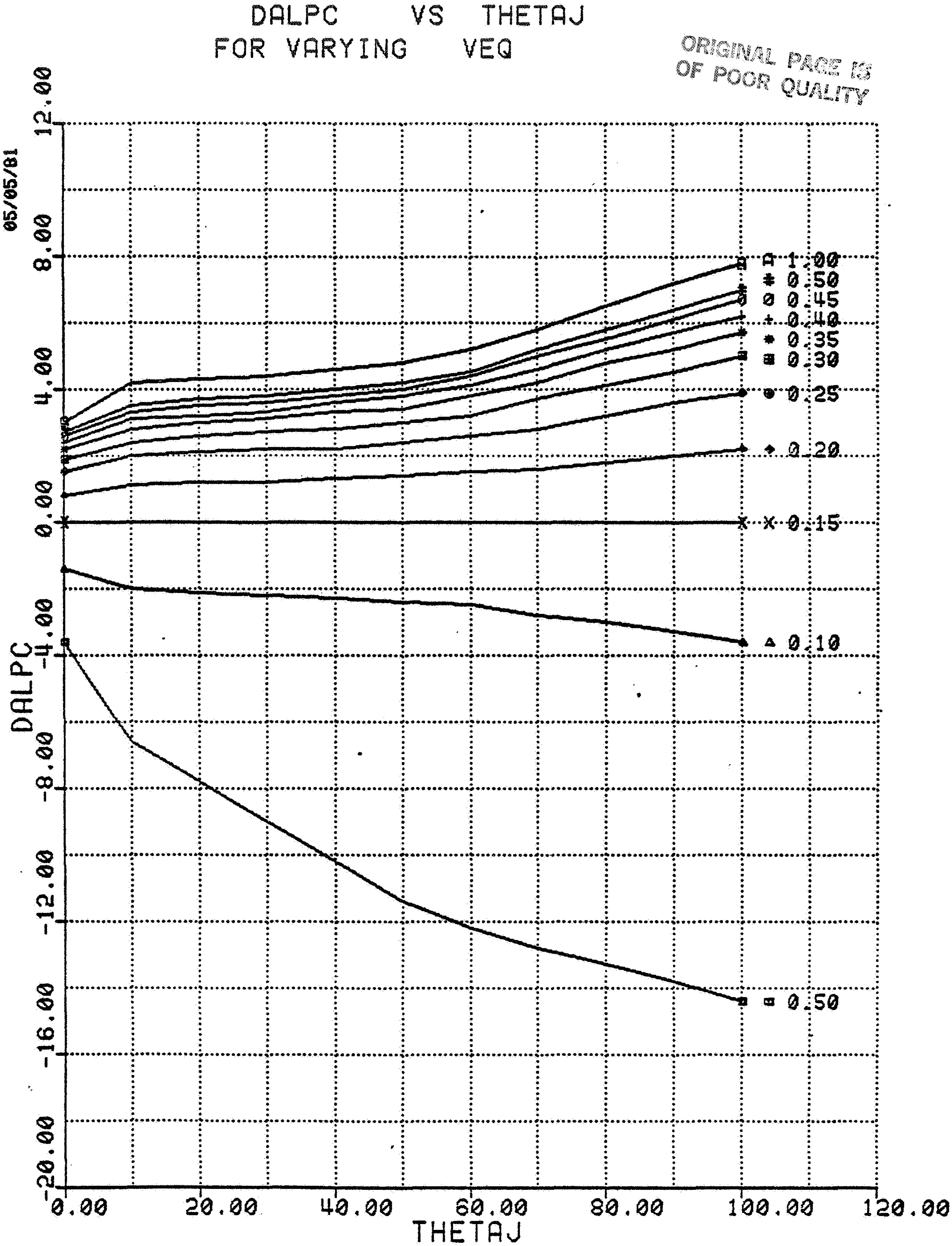



CYPOW VS VEQ
FOR VARYING ALPHA
04/30/81
CYPOW *10^{-1}
VEQ
0.02
-0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
0.00
0.08
0.16
0.24
0.32
0.40
0.48
12.00
20.00
8.00
16.00
24.00
-4.00
0.00
4.00


DALPC VS THETAJ
FOR VARYING VEQ
05/05/81
DALPC
THETAJ
12.00
8.00
4.00
0.00
-4.00
-8.00
-12.00
-16.00
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
1.00
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.50

ORIGINAL PAGE IS
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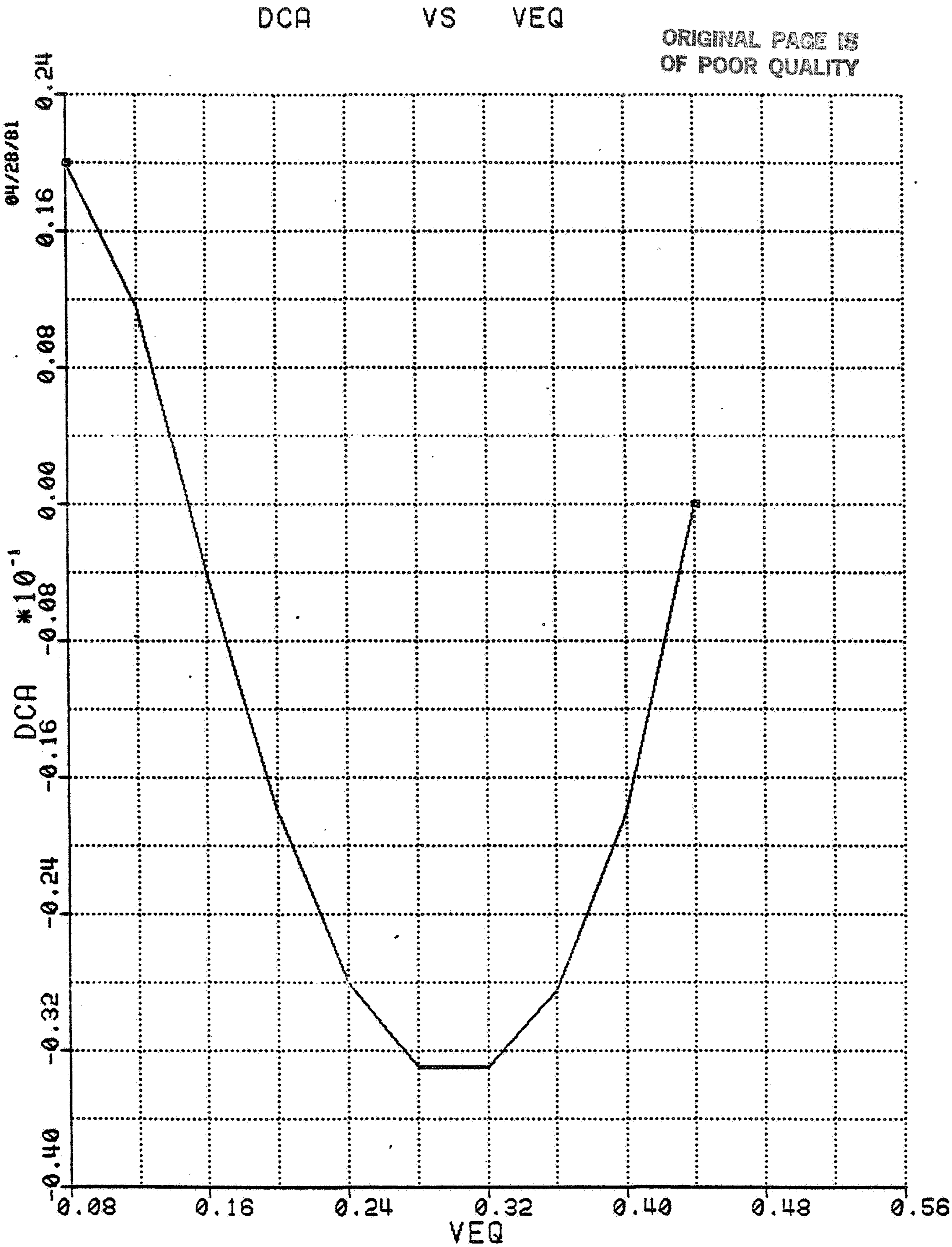
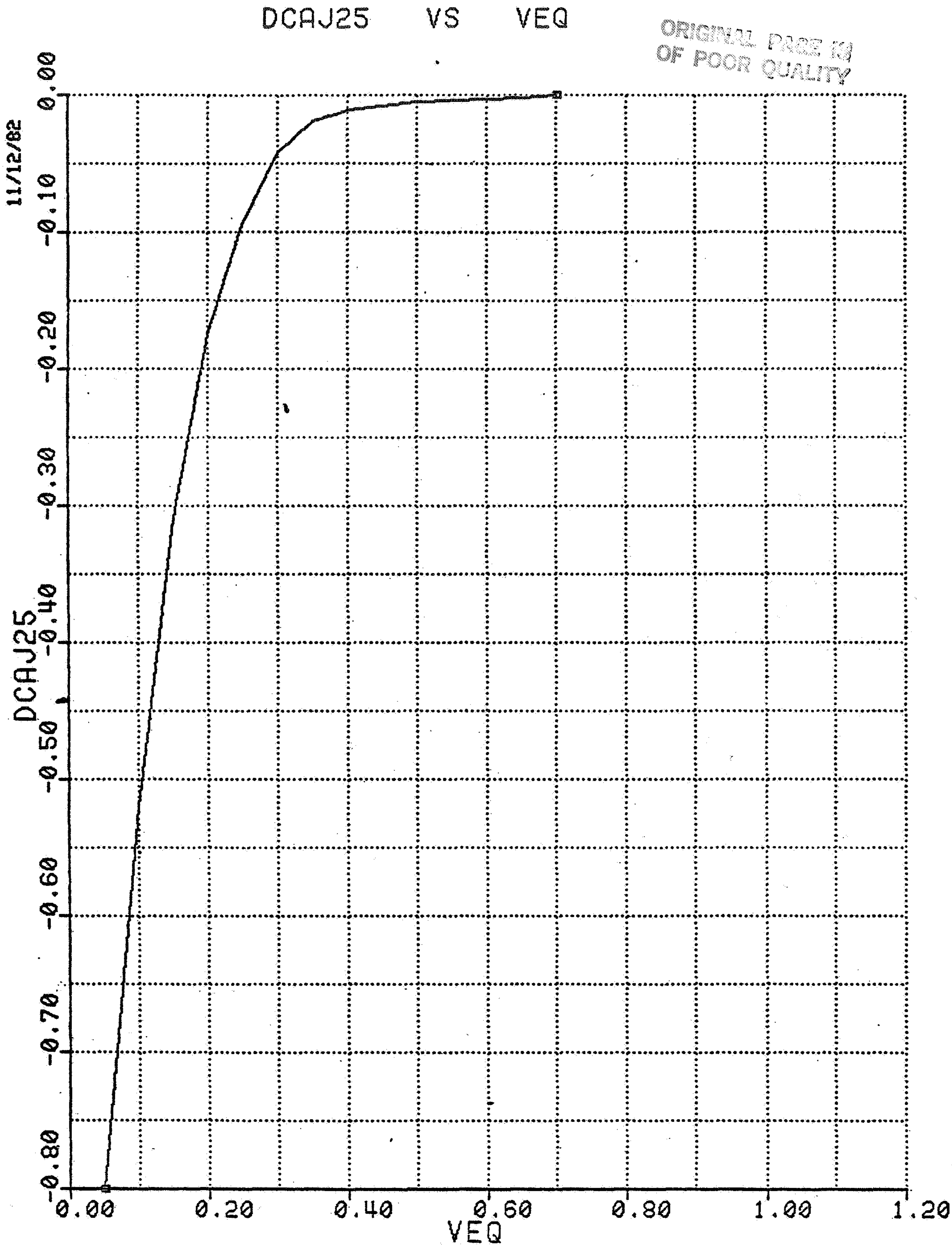
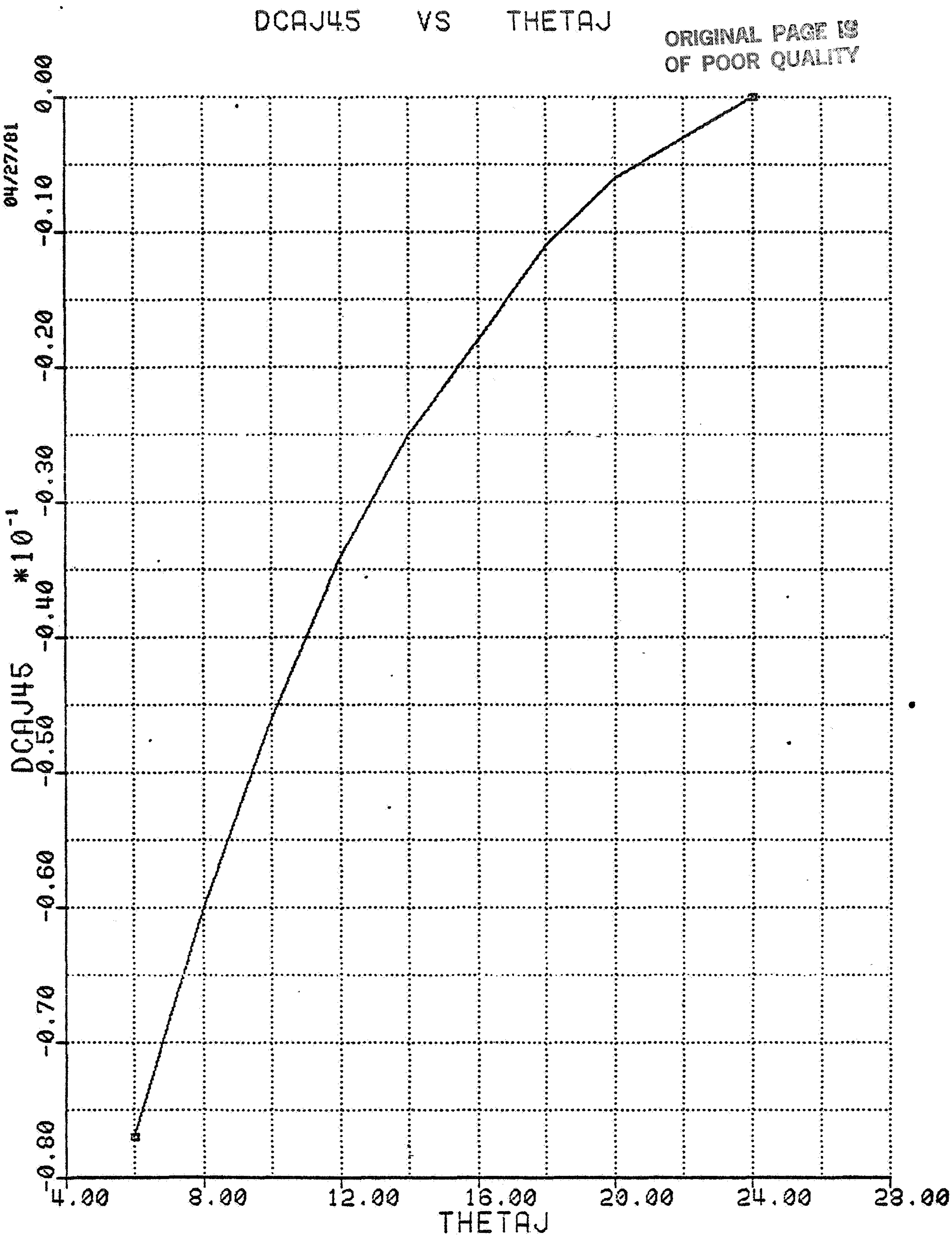
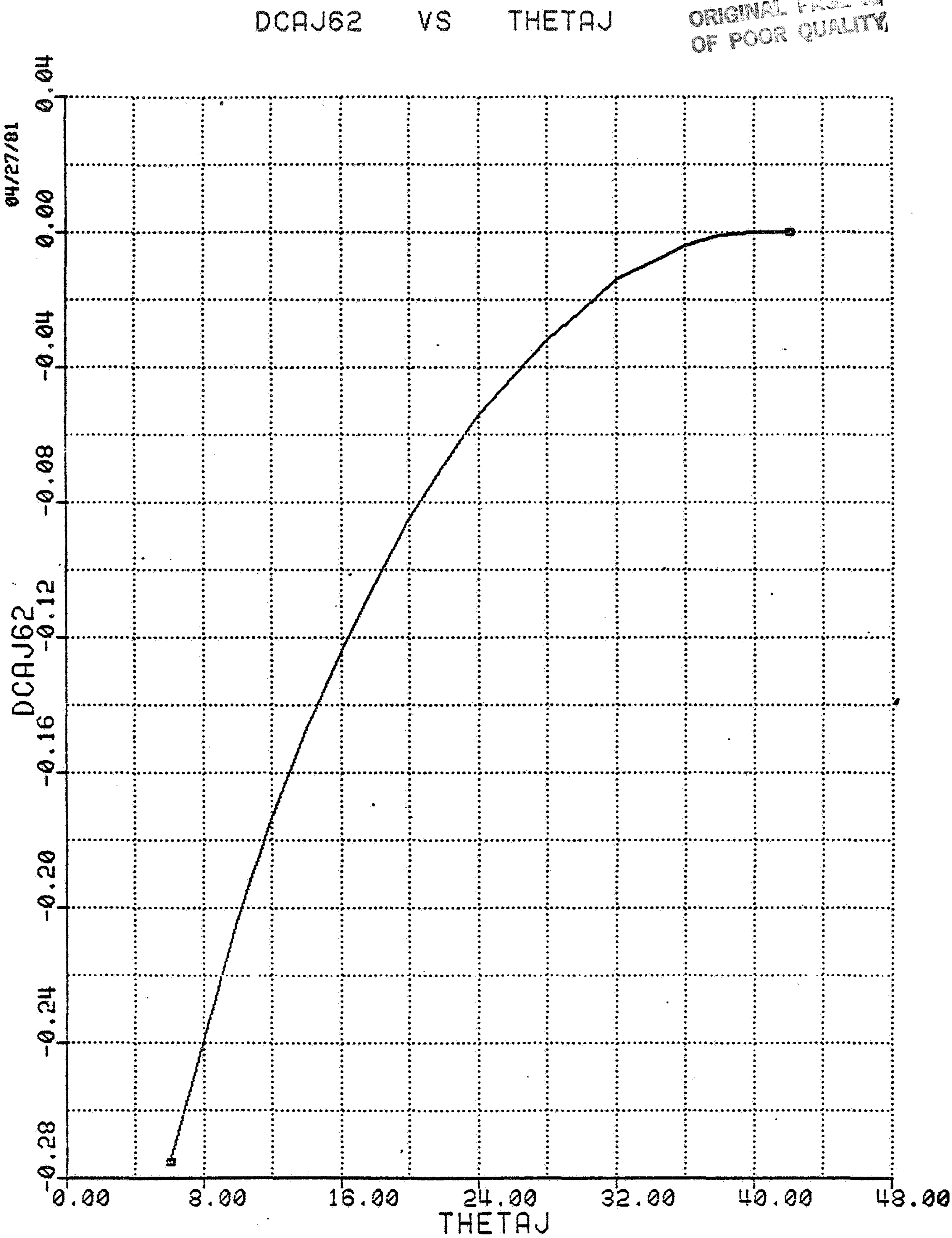
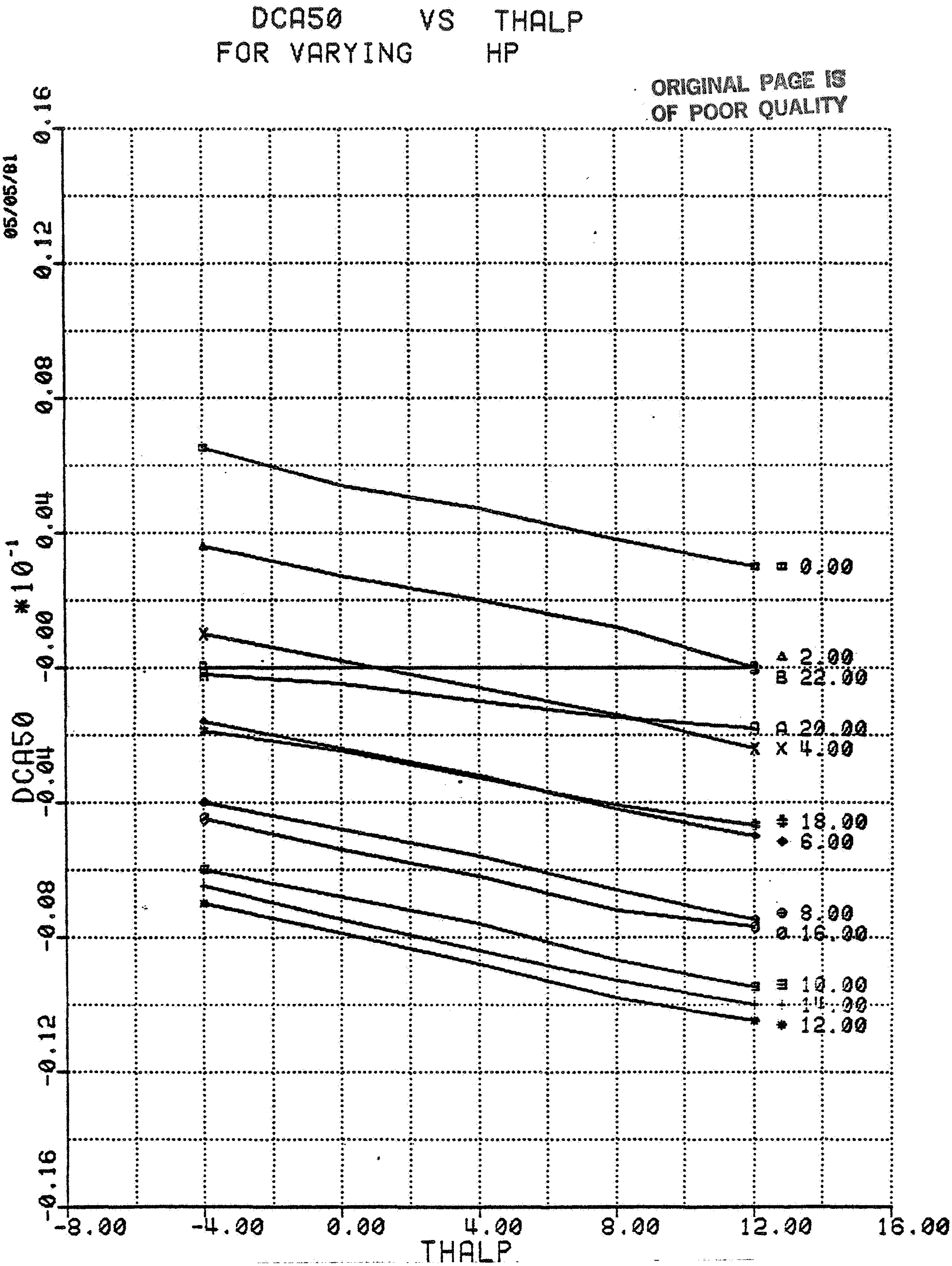


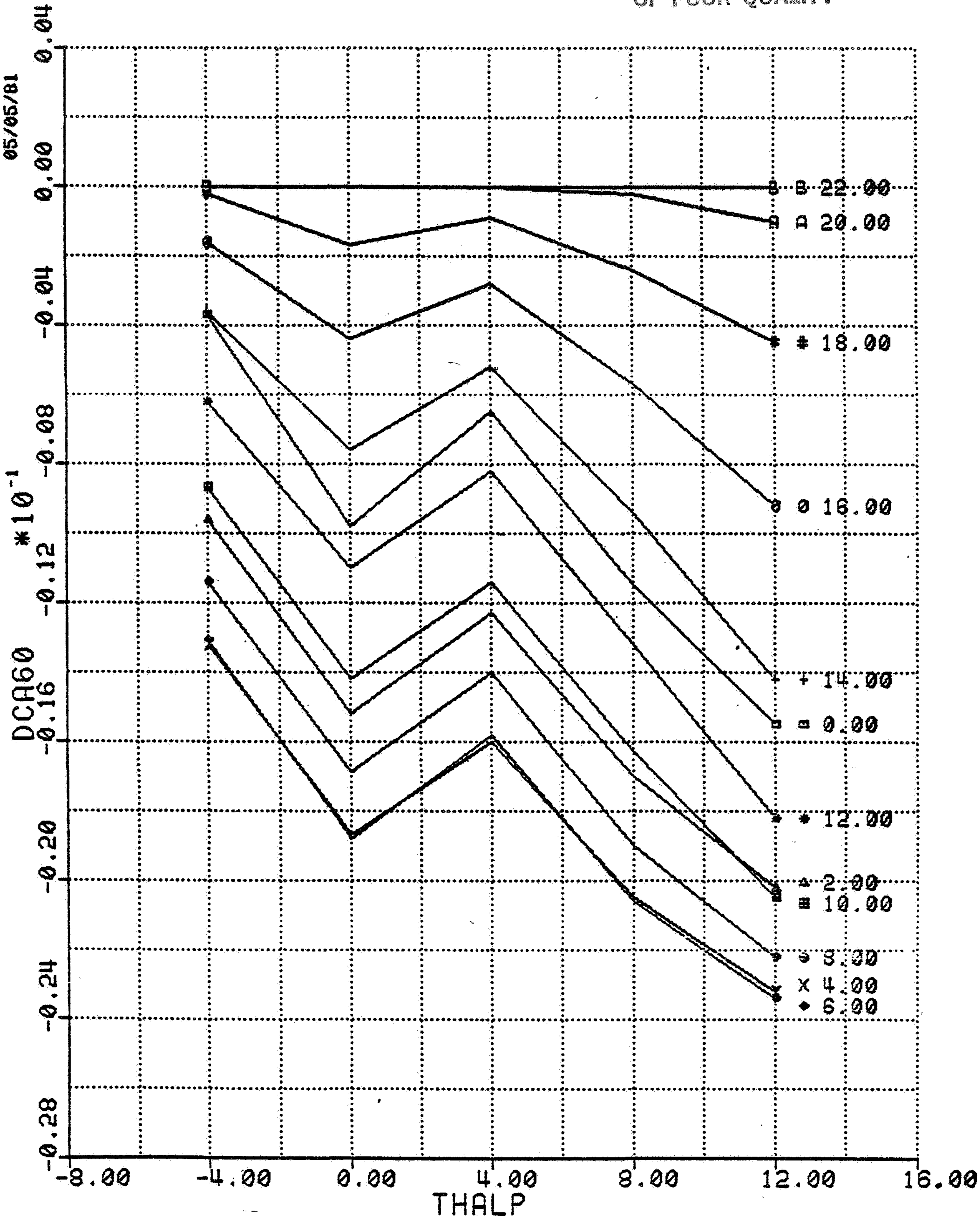

DCAJ25 VS VEQ
11/12/82
DCAJ25
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-0.70
-0.80
0.00
0.20
0.40
0.60
0.80
1.00
1.20
VEQ

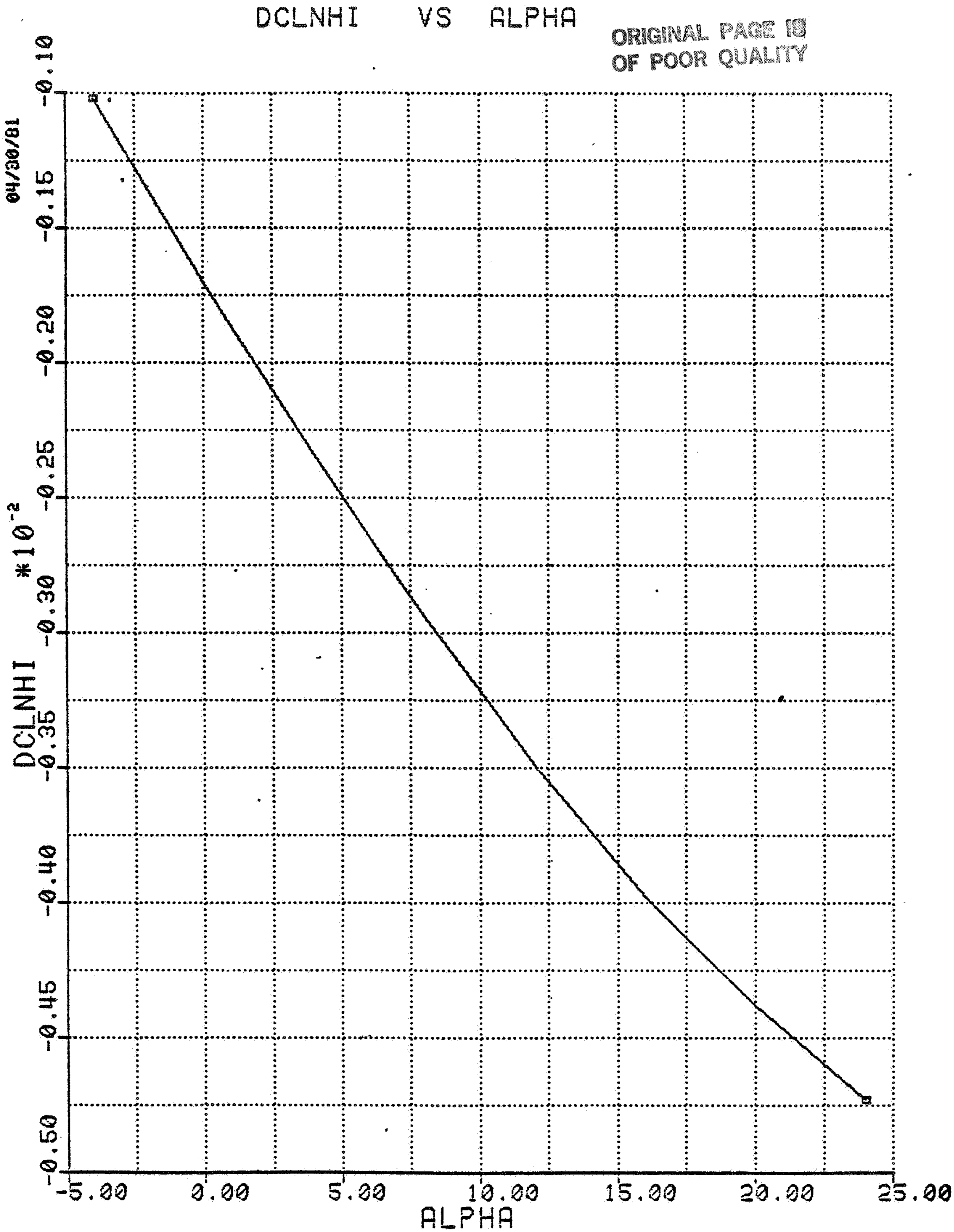

DCAJ45 VS THETAJ
04/27/81
DCAJ45 *10^{-1}
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-0.70
-0.80
4.00
8.00
12.00
16.00
20.00
24.00
28.00
THETAJ

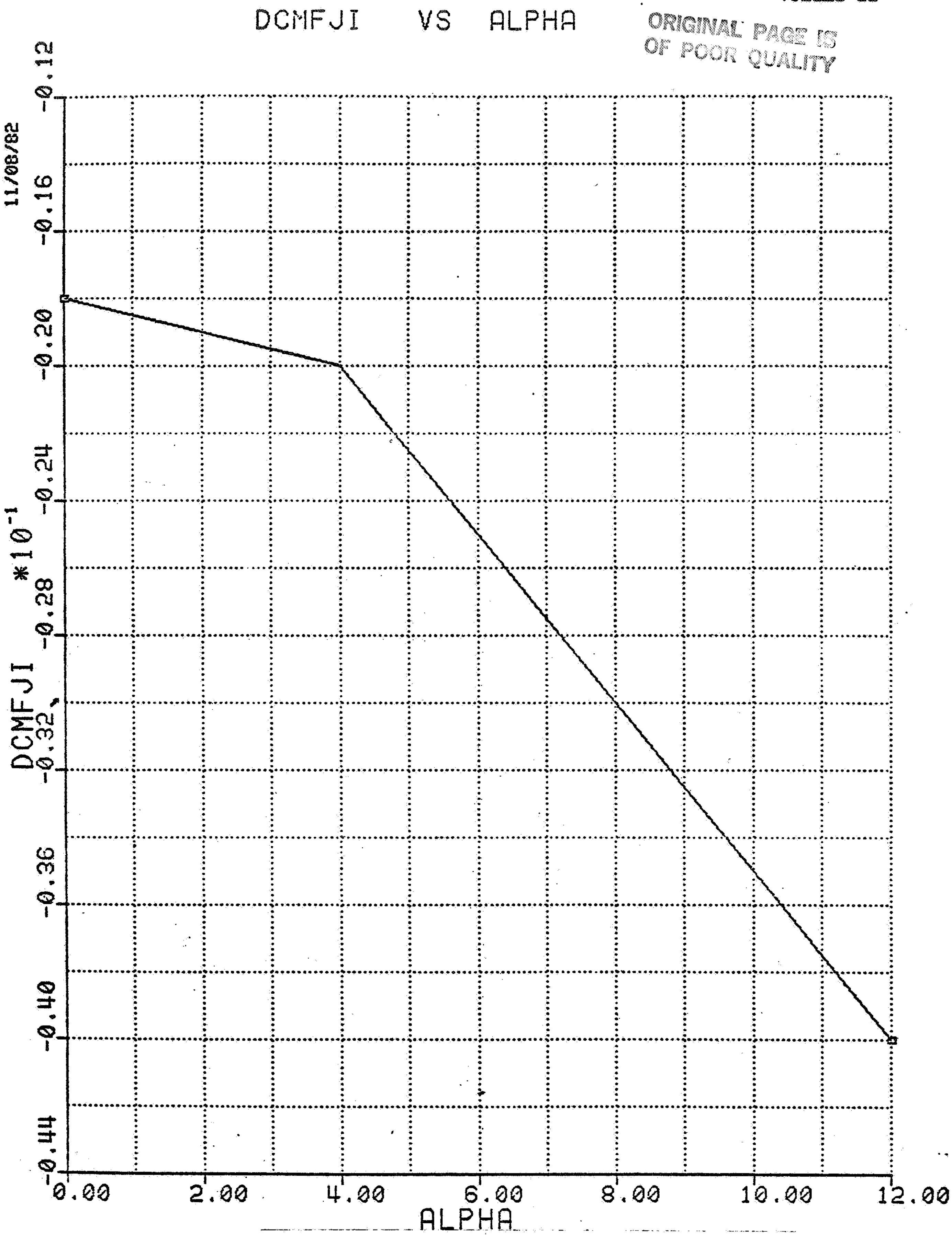

DCAJ62 VS THETAJ
04/27/81
0.04
0.00
-0.04
-0.08
-0.12
-0.16
-0.20
-0.24
-0.28
DCAJ62
0.00
8.00
16.00
24.00
32.00
40.00
48.00
THETAJ

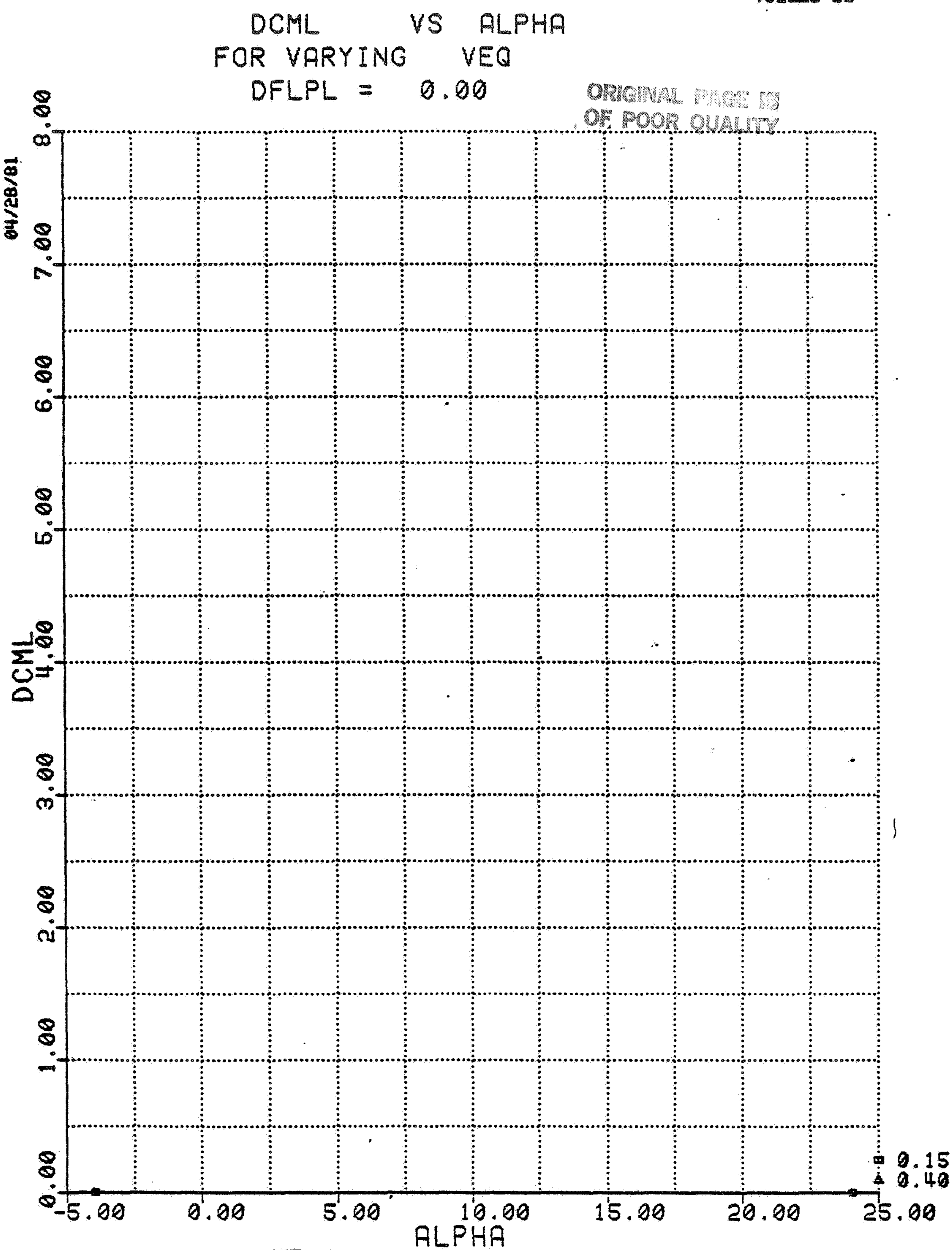

DCA50 VS THALP
FOR VARYING HP
05/05/81
DCA50
*10⁻¹
0.16
0.12
0.08
0.04
-0.00
-0.04
-0.08
-0.12
-0.16
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
THALP
0.00
2.00
22.00
20.00
4.00
18.00
6.00
8.00
16.00
10.00
14.00
12.00

DCA60 VS THALP
FOR VARYING HP




DCLNHI VS ALPHA
04/30/81
DCLNHI *10^-2
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
-0.45
-0.50
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA


DCMFJI VS ALPHA
11/08/82
DCMFJI *10⁻¹
-0.12
-0.16
-0.20
-0.24
-0.28
-0.32
-0.36
-0.40
-0.44
0.00
2.00
4.00
6.00
8.00
10.00
12.00
ALPHA


DCML VS ALPHA
FOR VARYING VEQ
DFLPL = 0.00
04/28/81
DCML
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA
0.15
0.40

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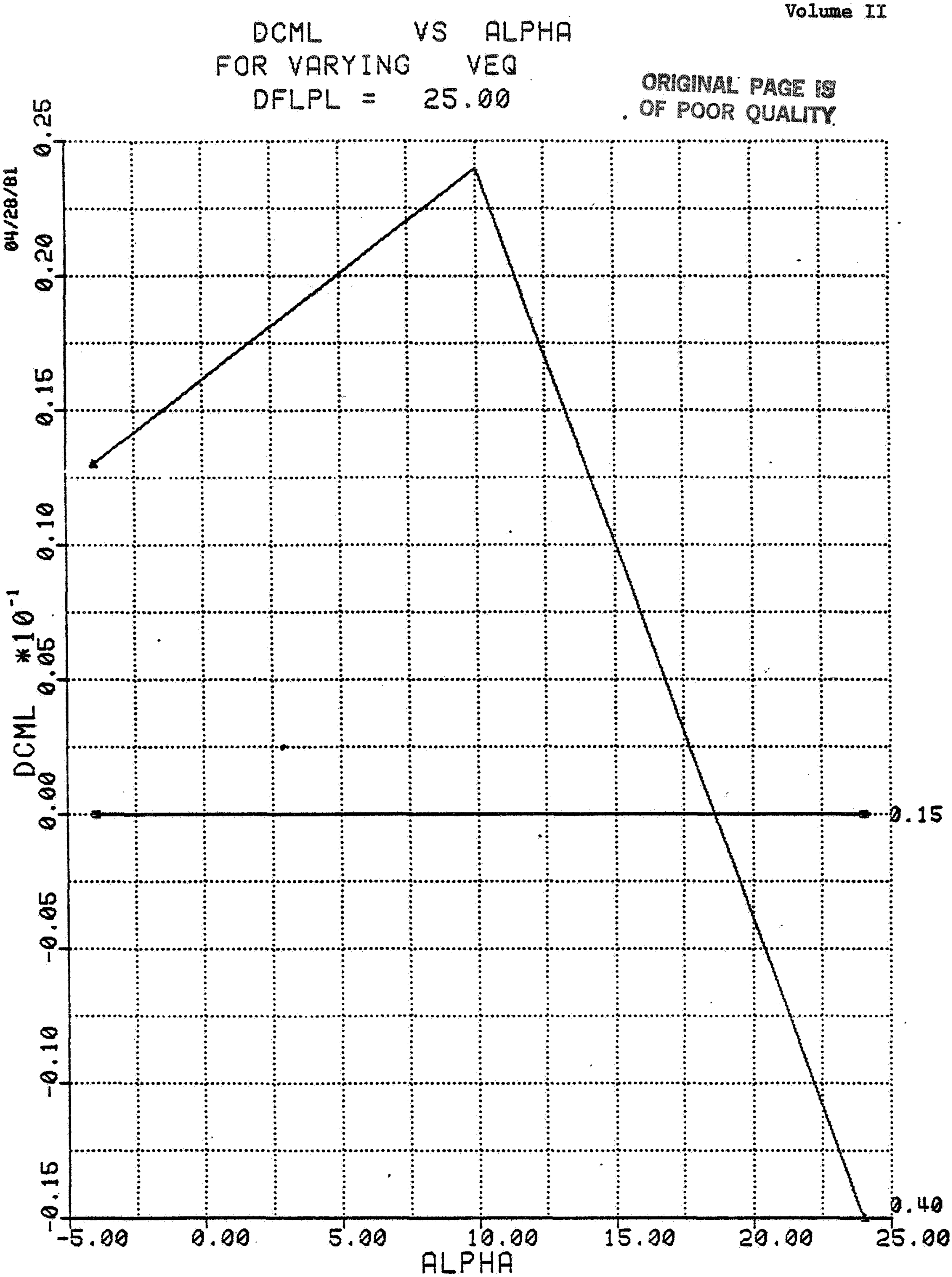
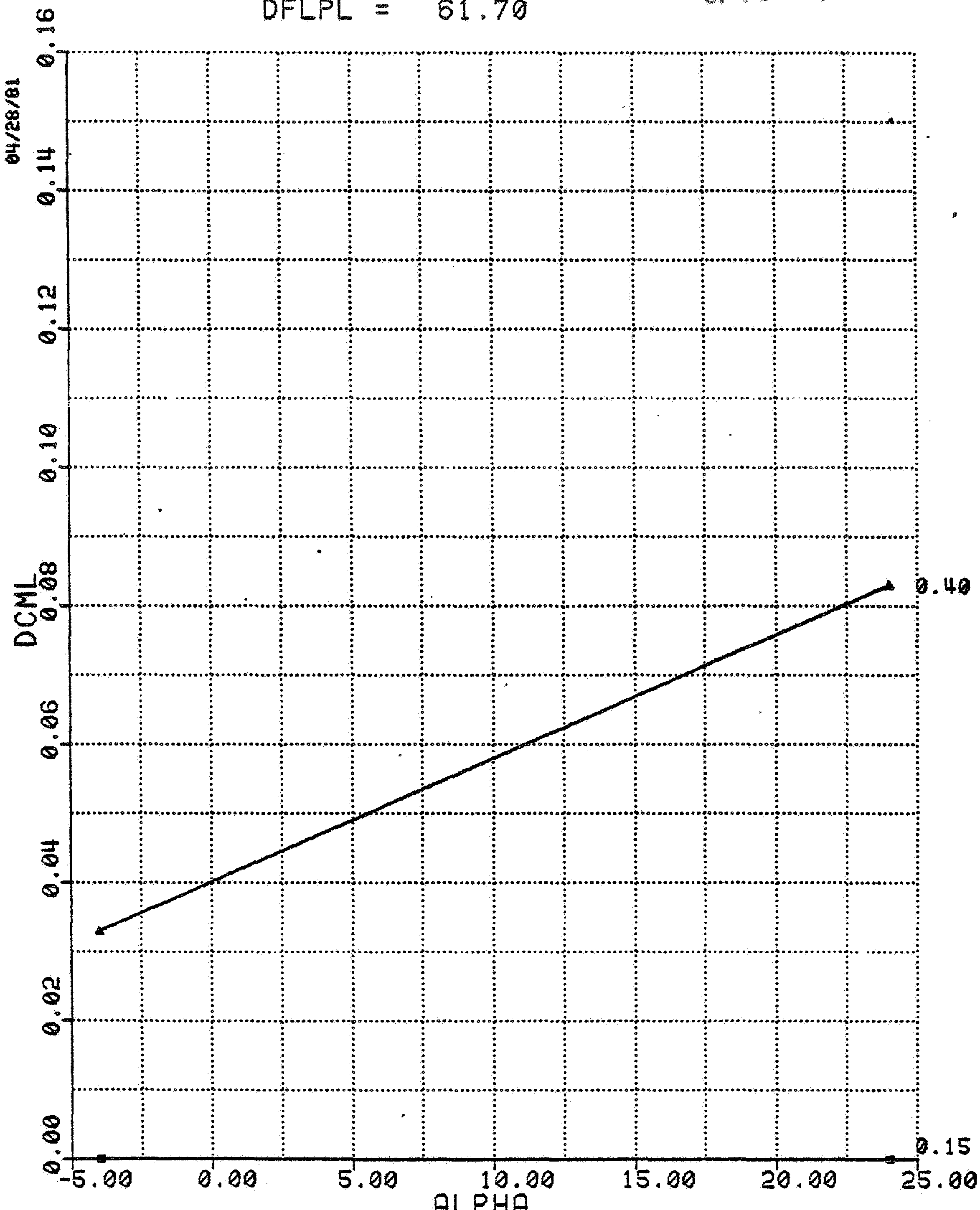
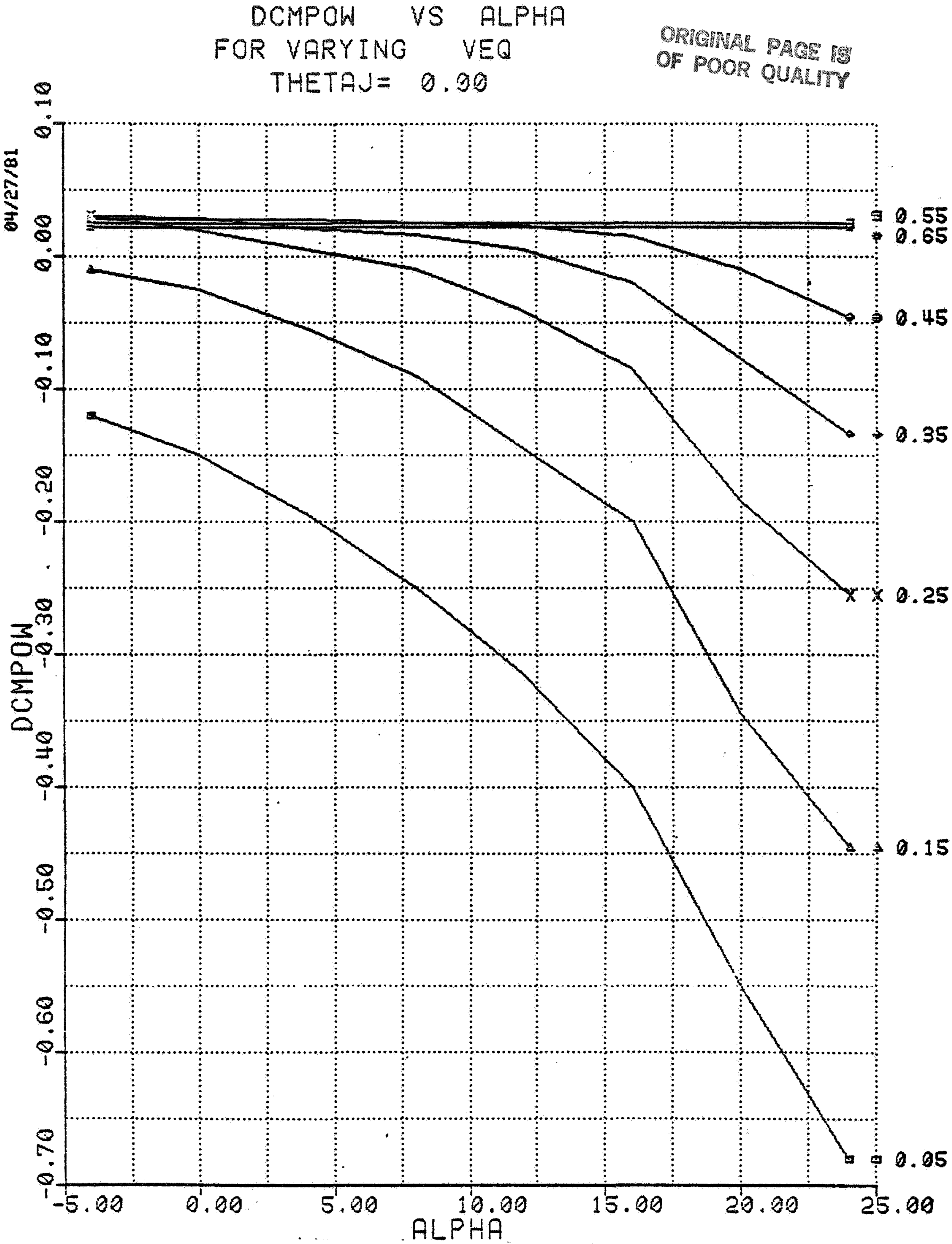
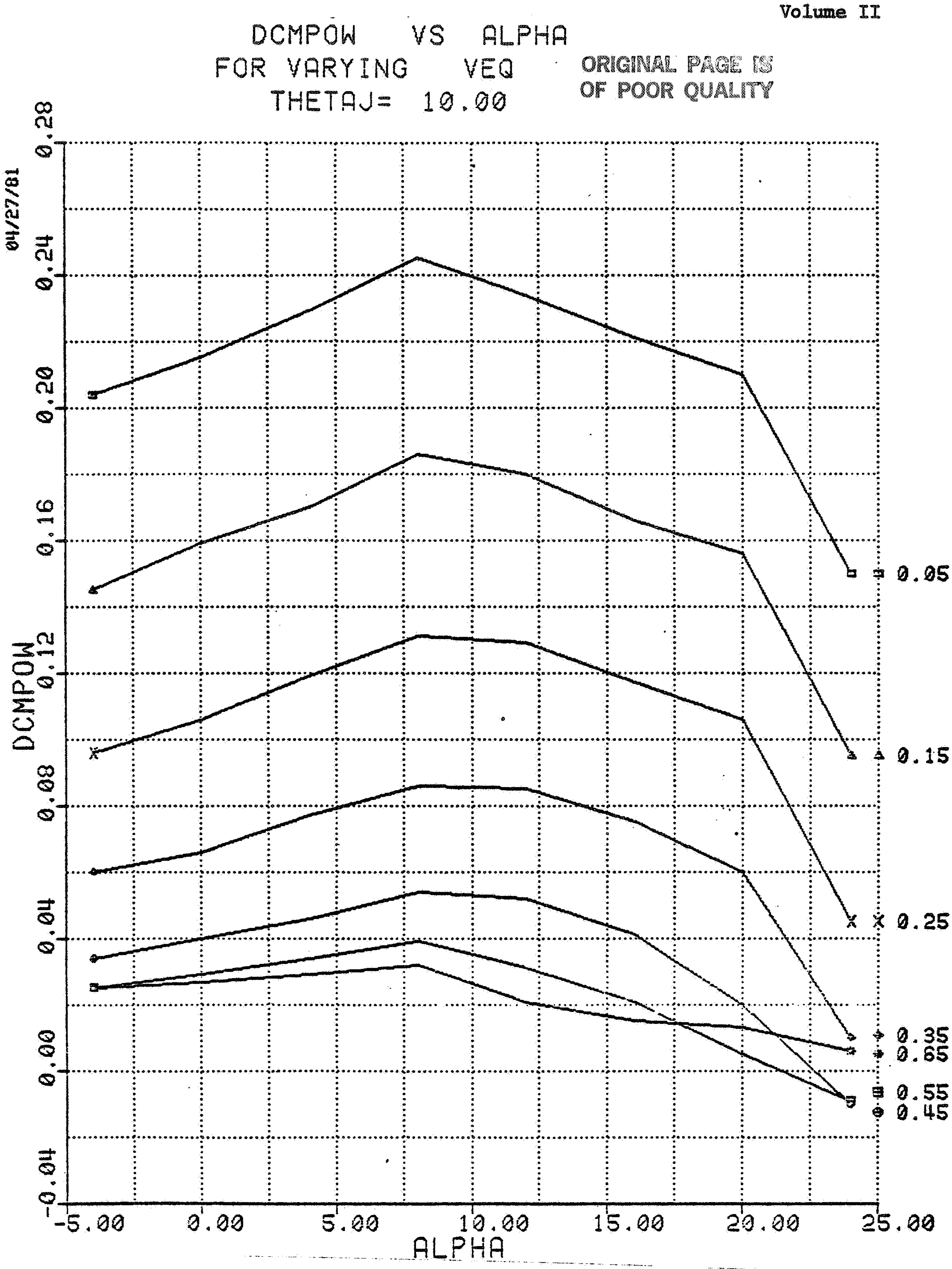
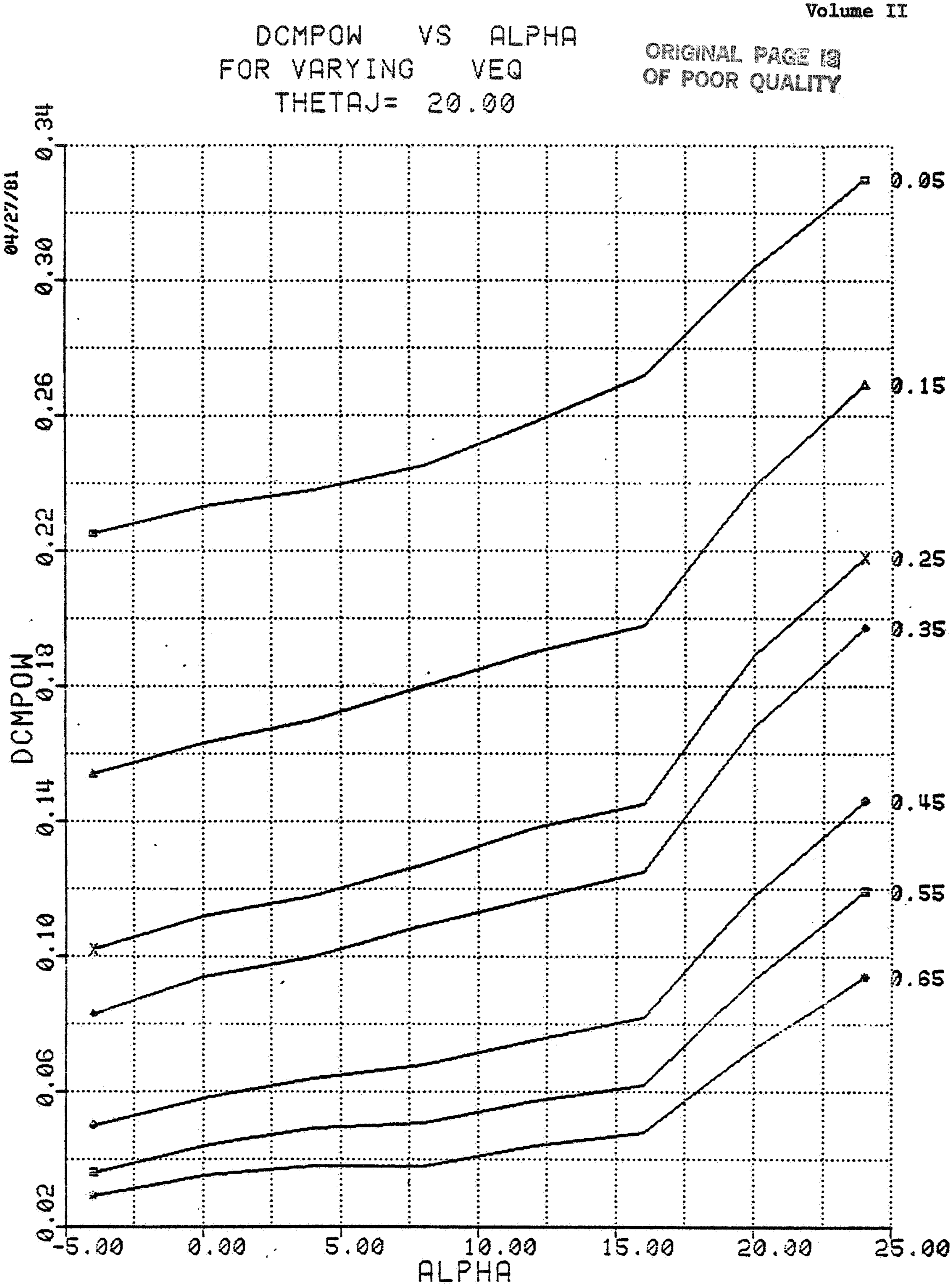


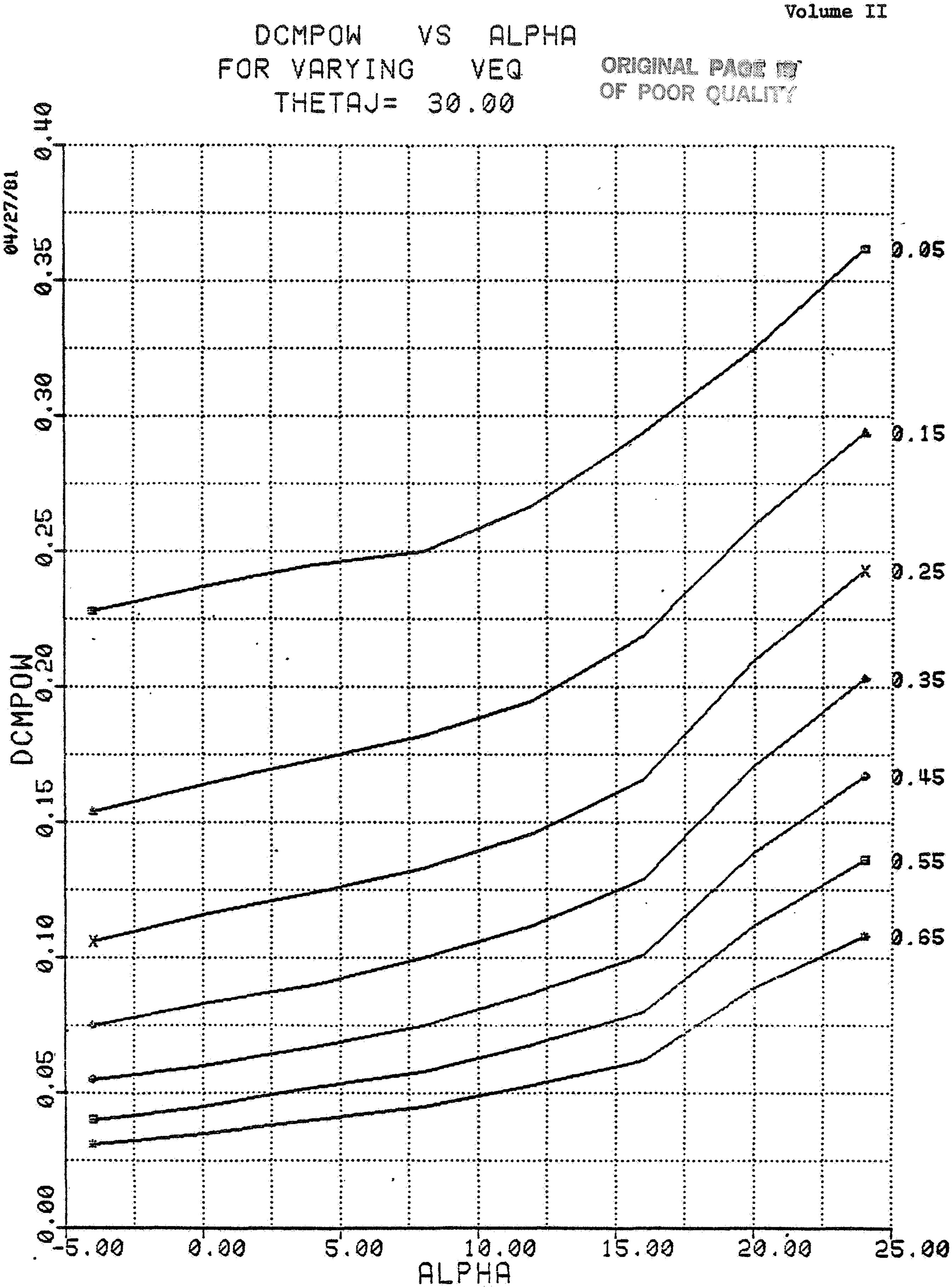
DCML VS ALPHA
FOR VARYING VEQ
DFLPL = 61.70

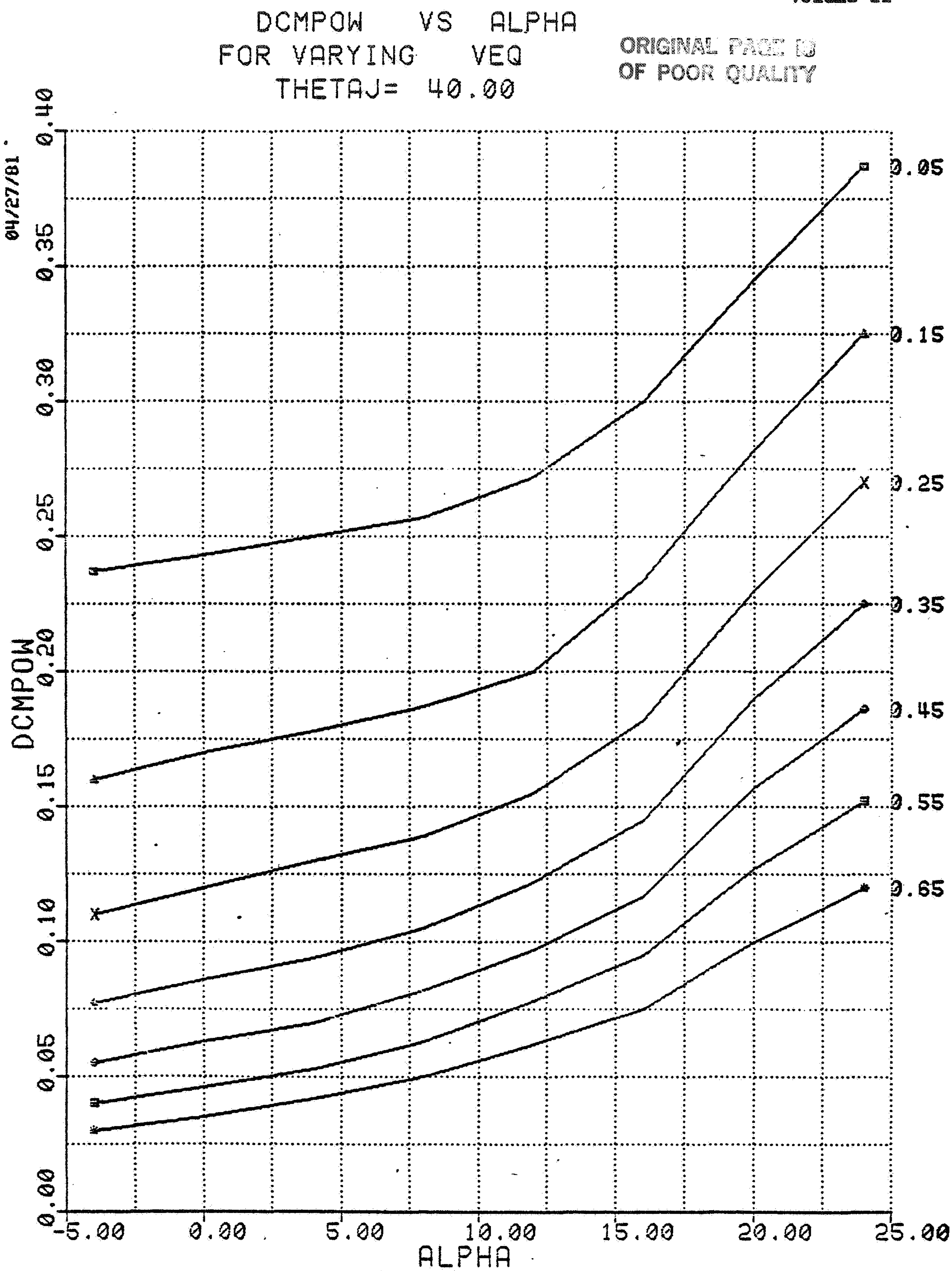


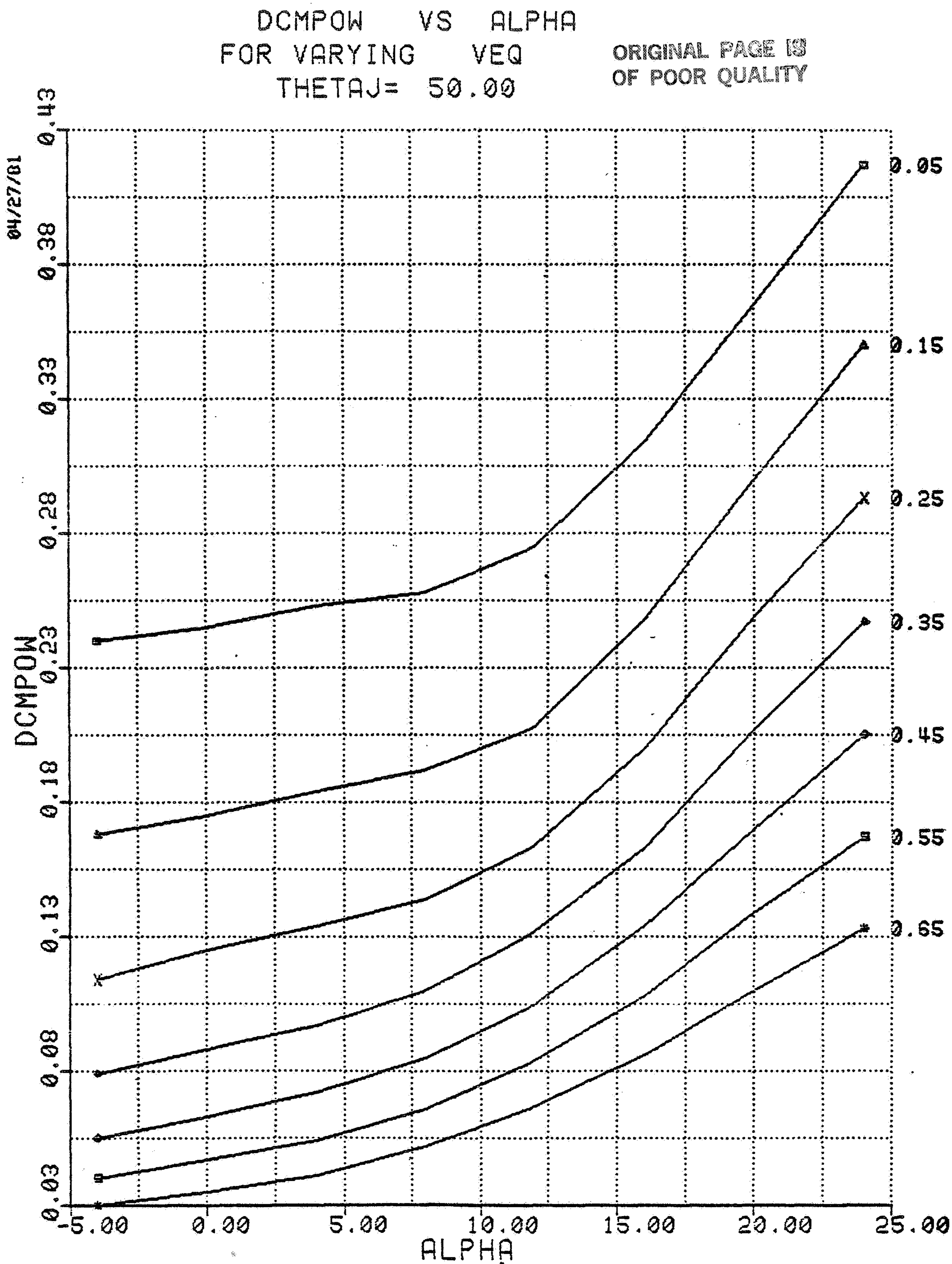

DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 0.00
04/27/81
DCMPOW
ALPHA
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-0.70
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.55
0.65
0.45
0.35
0.25
0.15
0.05

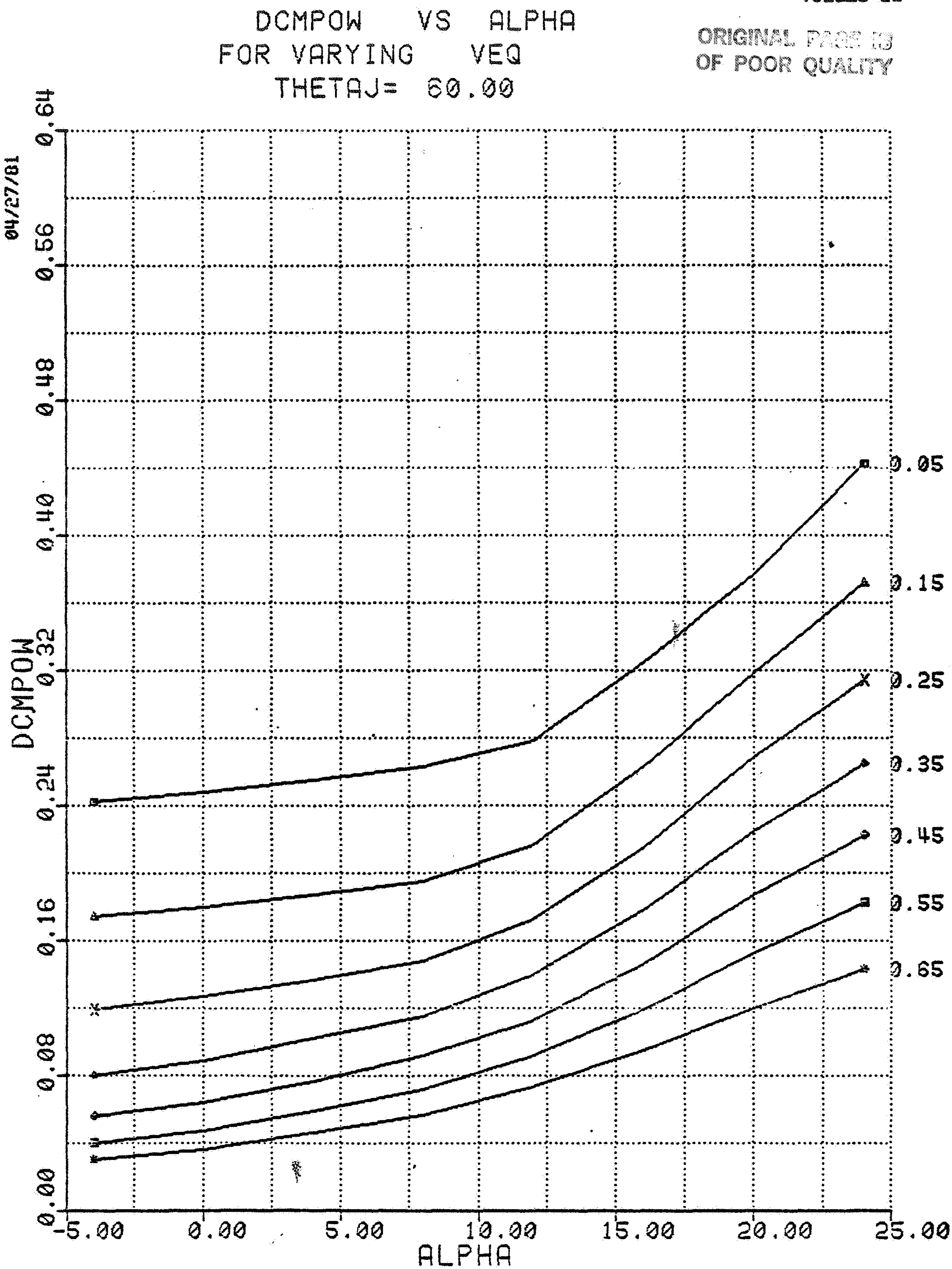

DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 10.00
04/27/81
DCMPOW
0.28
0.24
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.65
0.55
0.45

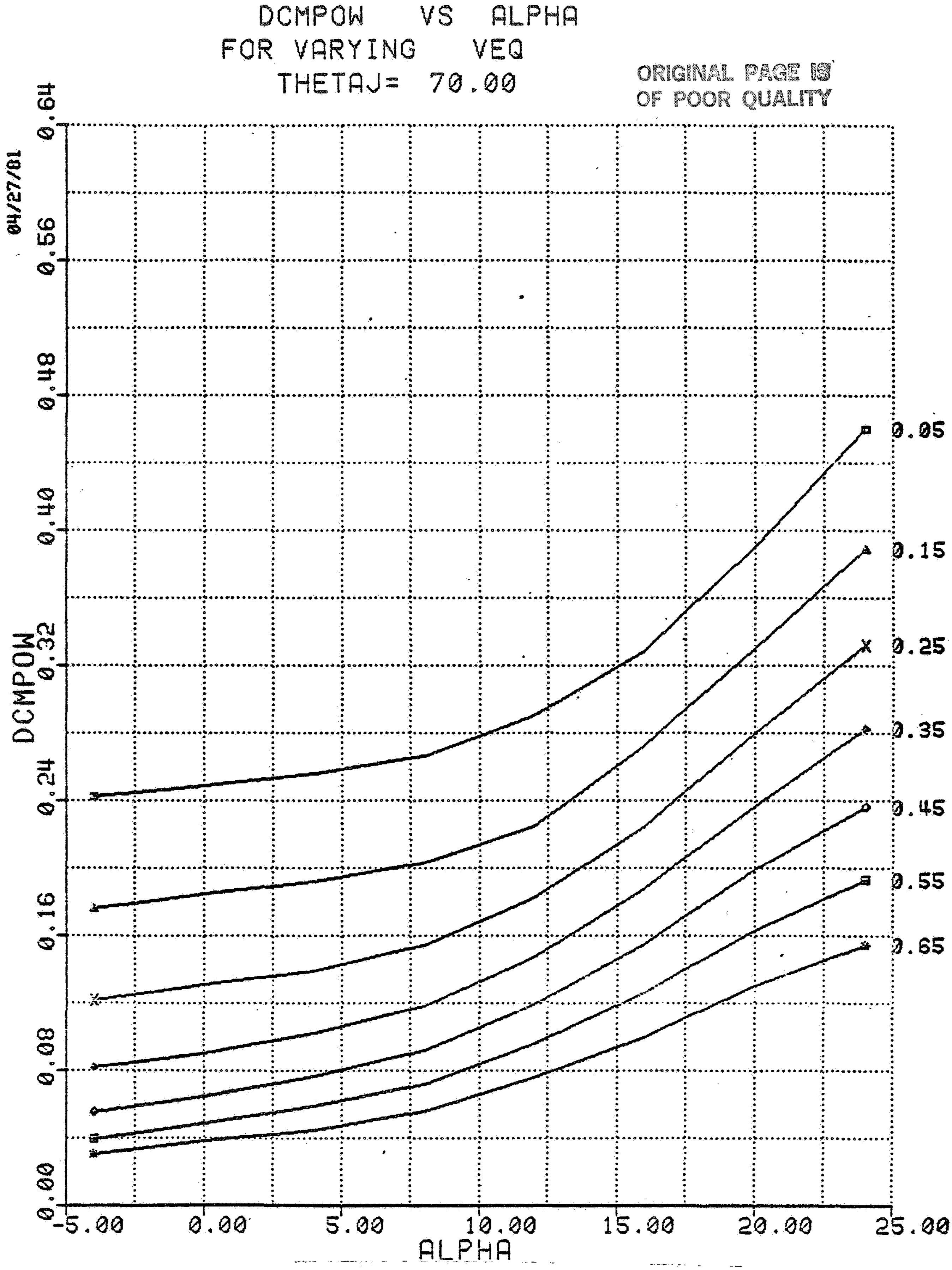

DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 20.00
04/27/81
DCMPOW
0.02
0.06
0.10
0.14
0.18
0.22
0.26
0.30
0.34
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65


DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 30.00
04/27/81
DCMPOW
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65

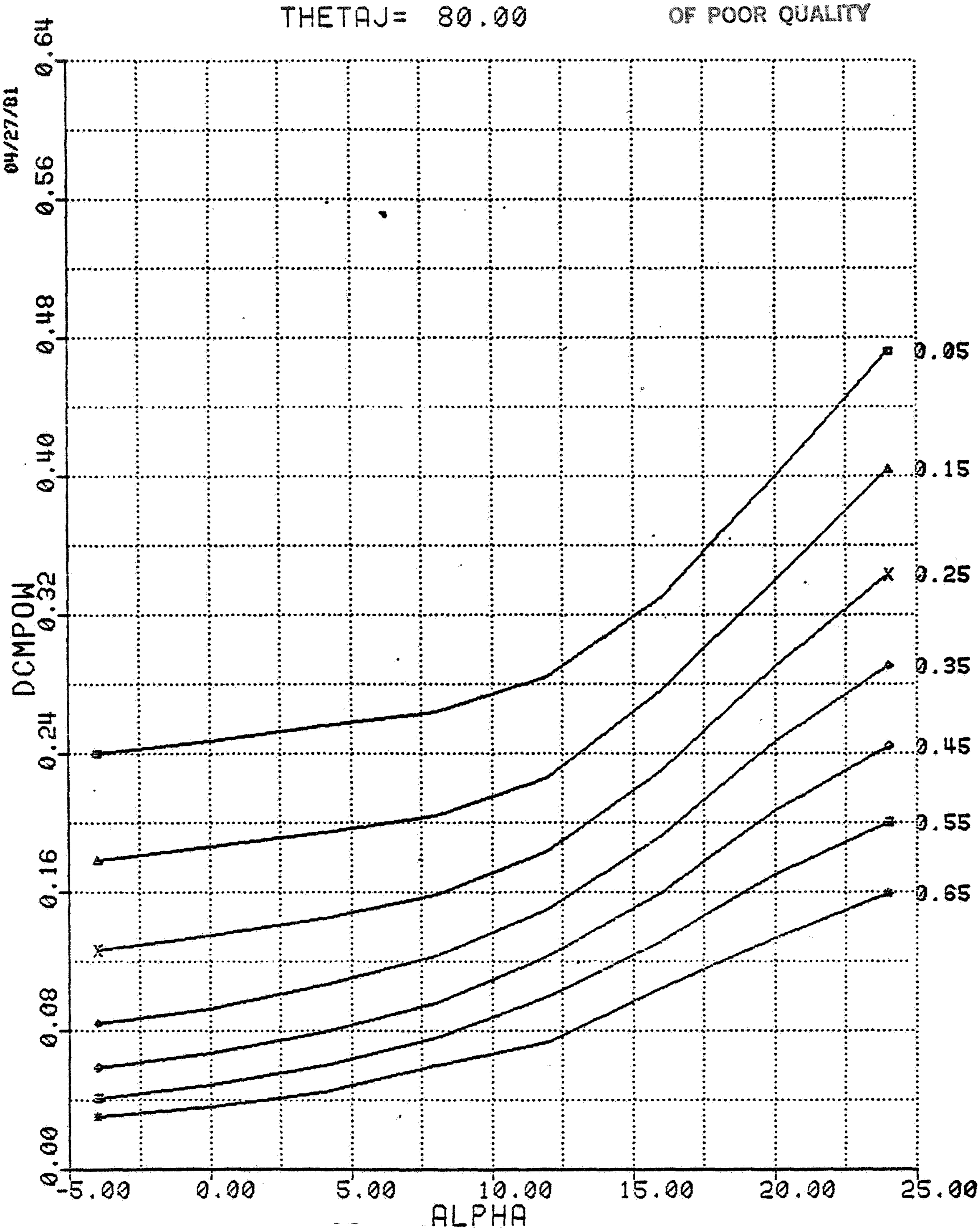

DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 40.00
04/27/81
DCMPOW
ALPHA
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65

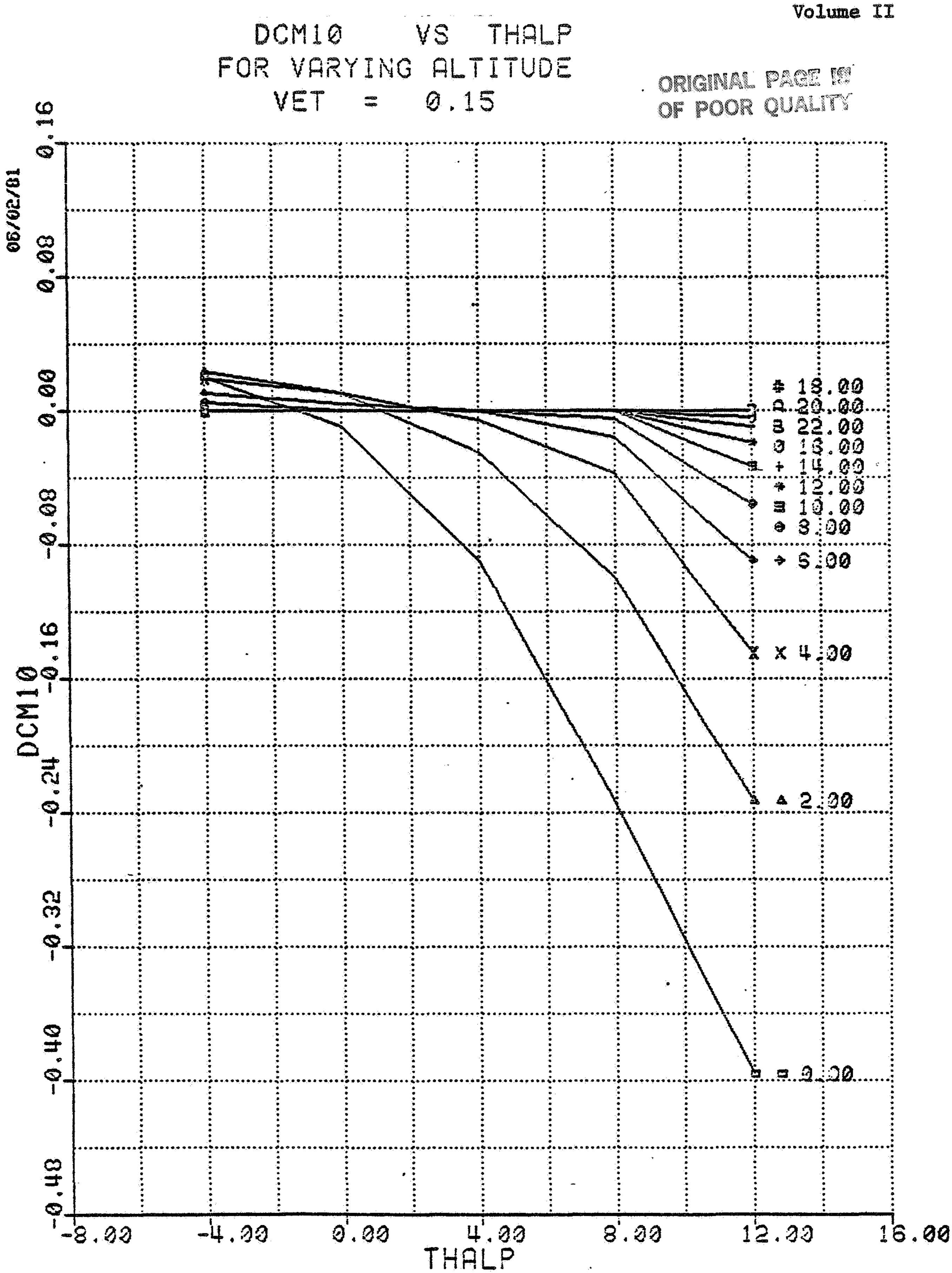

DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 50.00
04/27/81
DCMPOW
ALPHA
0.03
0.08
0.13
0.18
0.23
0.28
0.33
0.38
0.43
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65


DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 60.00
04/27/81
DCMPOW
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65


DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 70.00
04/27/81
0.64
0.56
0.48
0.40
0.32
0.24
0.16
0.08
0.00
DCMPOW
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA
0.05
0.15
0.25
0.35
0.45
0.55
0.65

DCMPOW VS ALPHA
FOR VARYING VEQ
THETAJ= 80.00




DCM10 VS THALP
FOR VARYING ALTITUDE
VET = 0.15
06/02/81
DCM10
THALP
0.16
0.08
0.00
-0.08
-0.16
-0.24
-0.32
-0.40
-0.48
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
18.00
20.00
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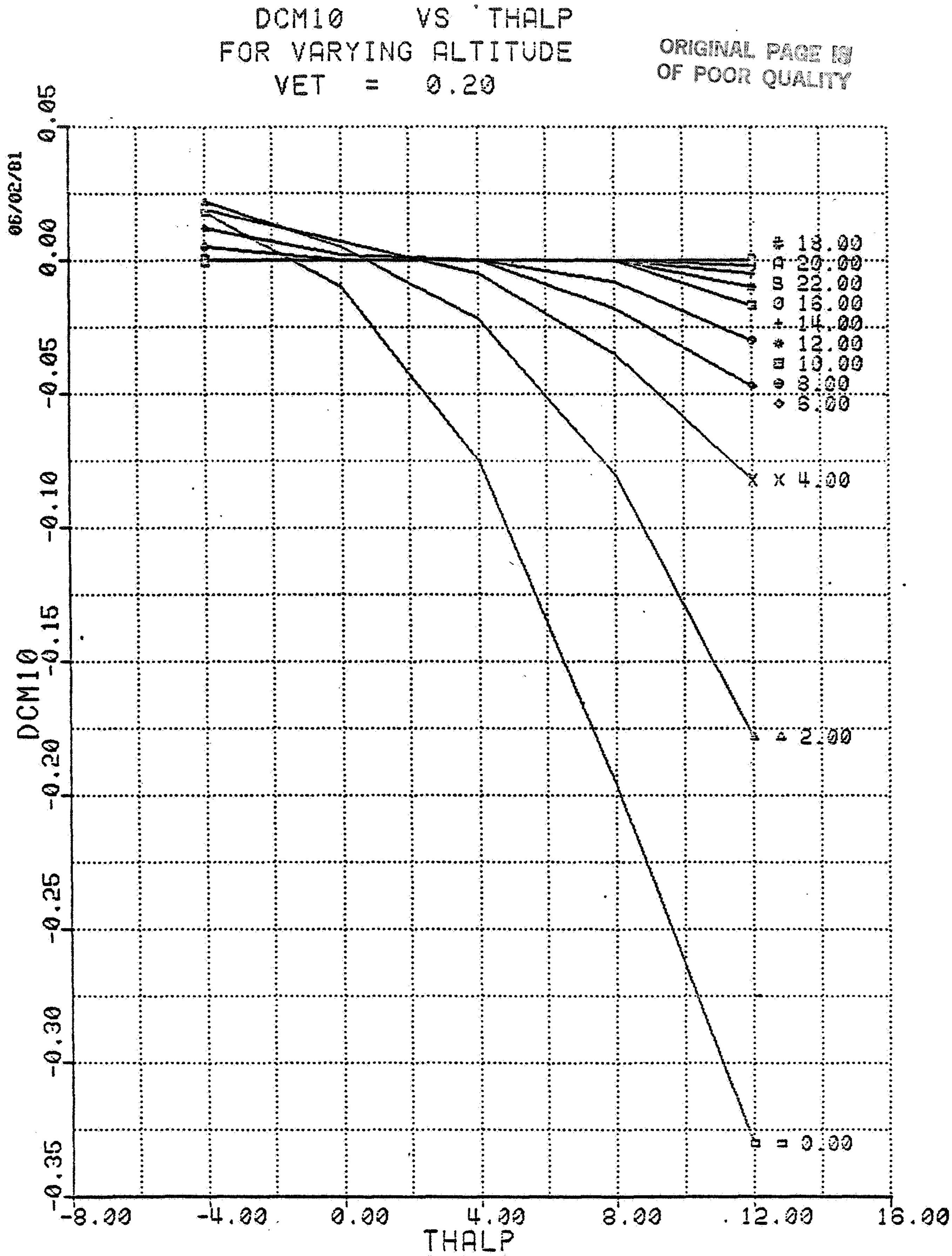
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00


DCM10 VS THALP
FOR VARYING ALTITUDE
VET = 0.20
06/02/81
DCM10
THALP
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
18.00
20.00
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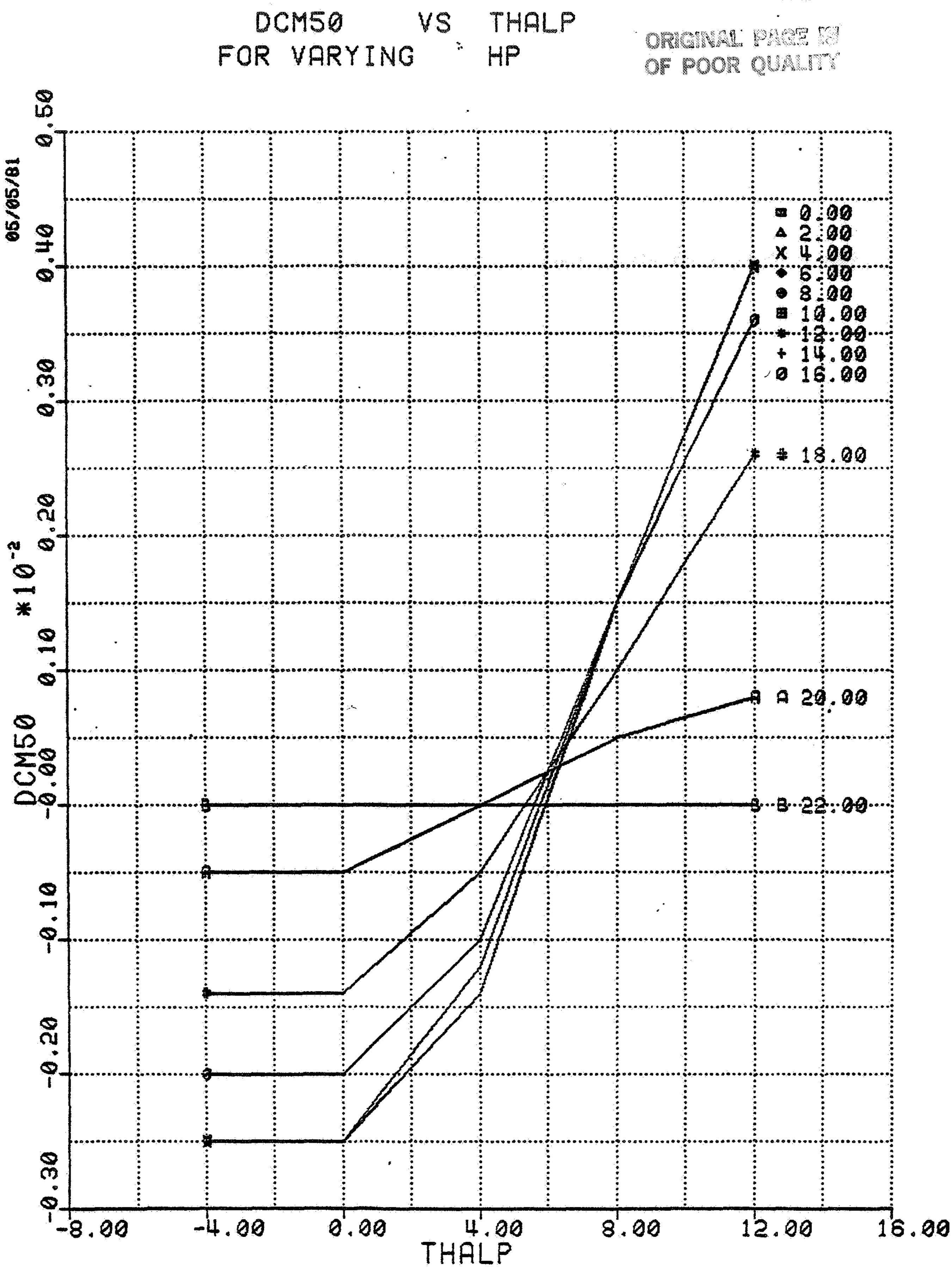
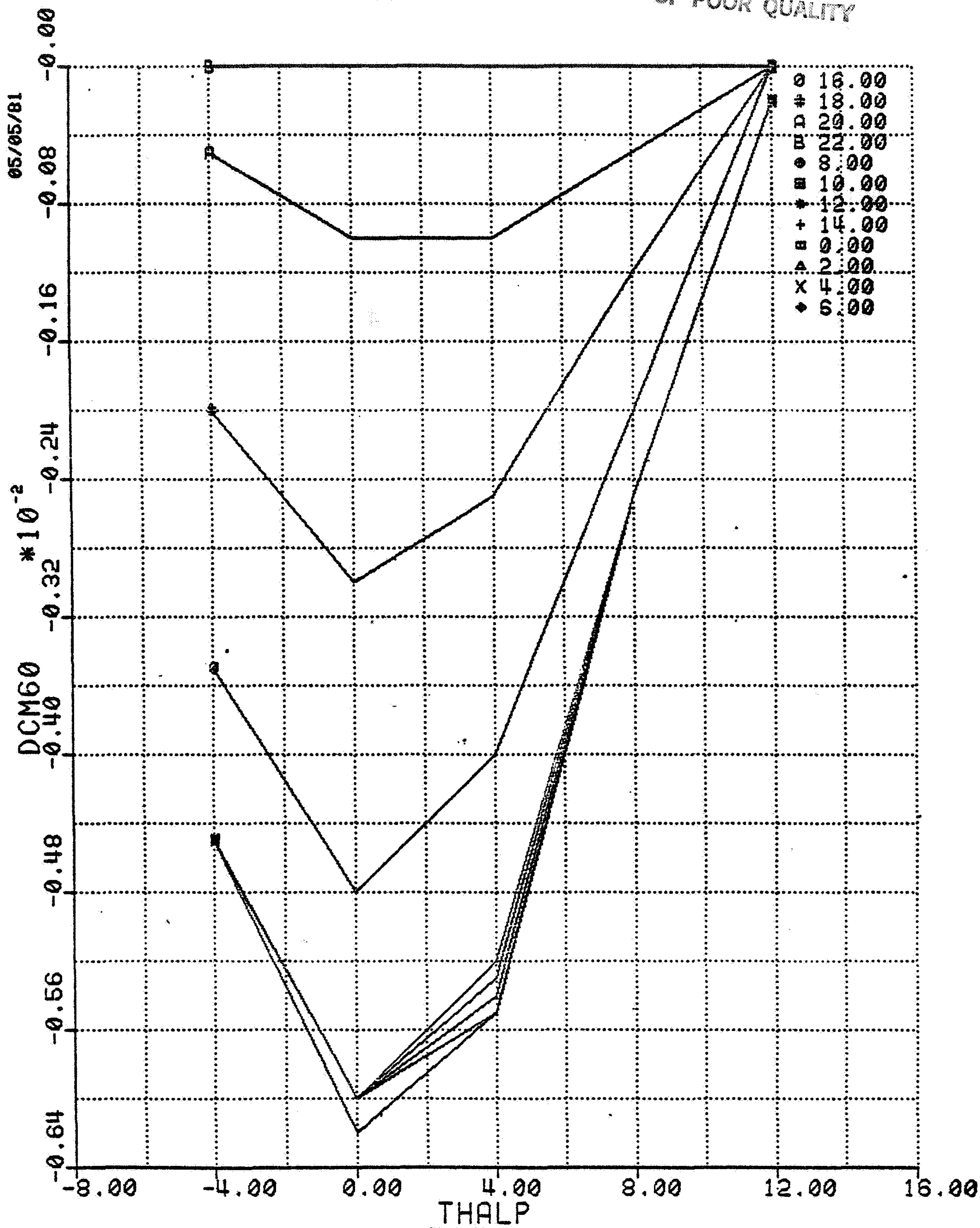
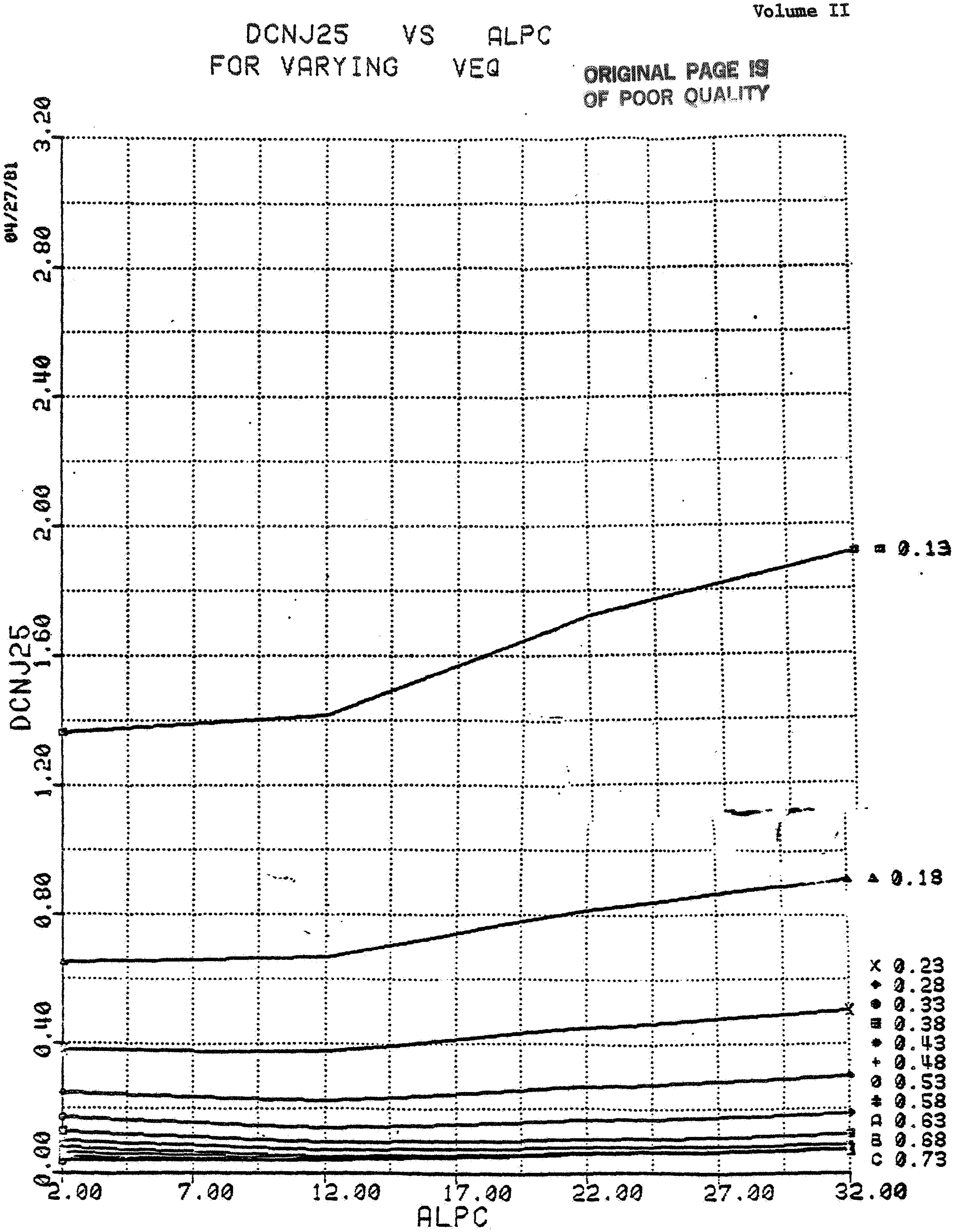
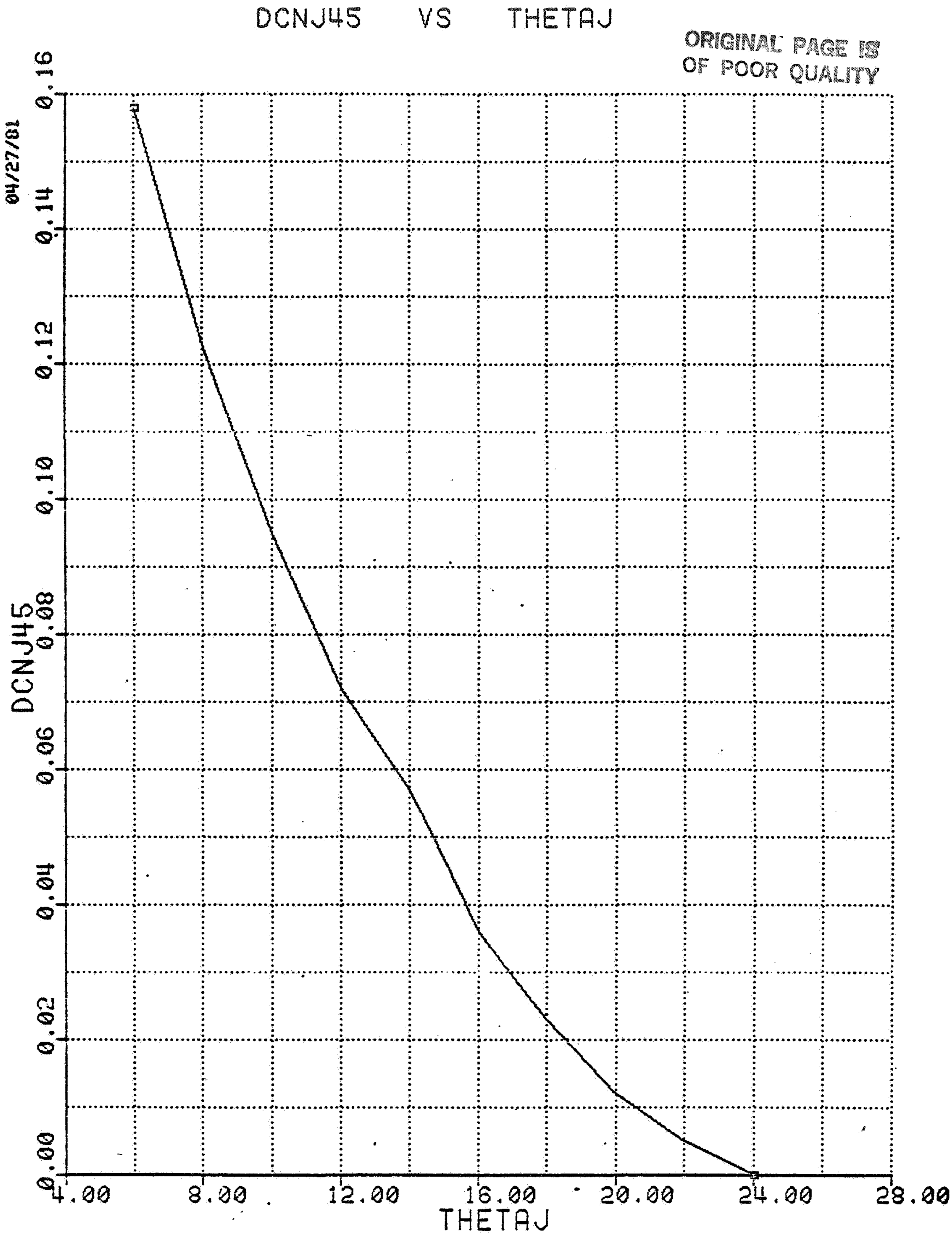
6.00
4.00
2.00
0.00


DCM50 VS THALP
FOR VARYING HP
05/05/81
DCM50 *10^-2
THALP
0.50
0.40
0.30
0.20
0.10
-0.00
-0.10
-0.20
-0.30
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00

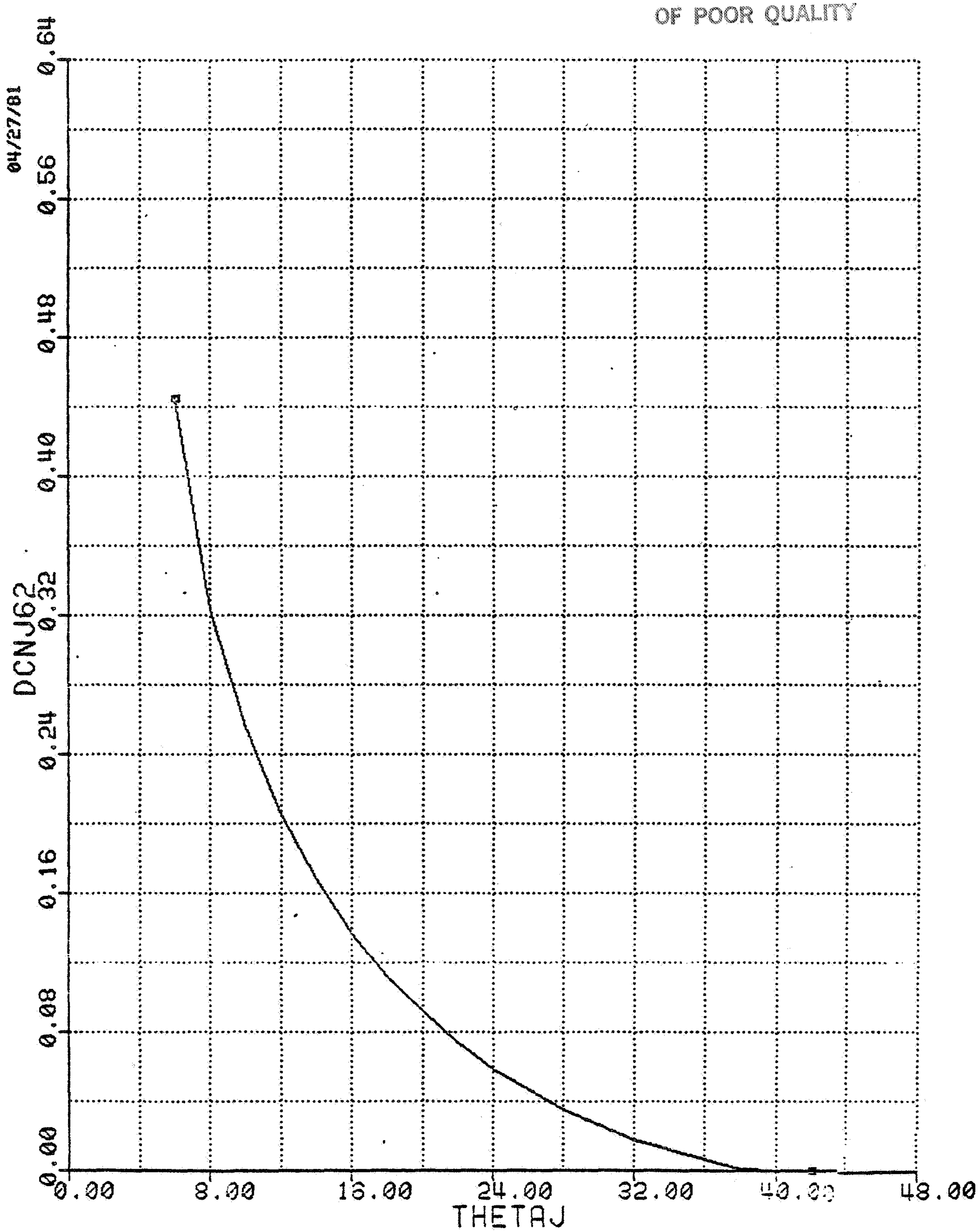
DCM60 VS THALP
FOR VARYING HP

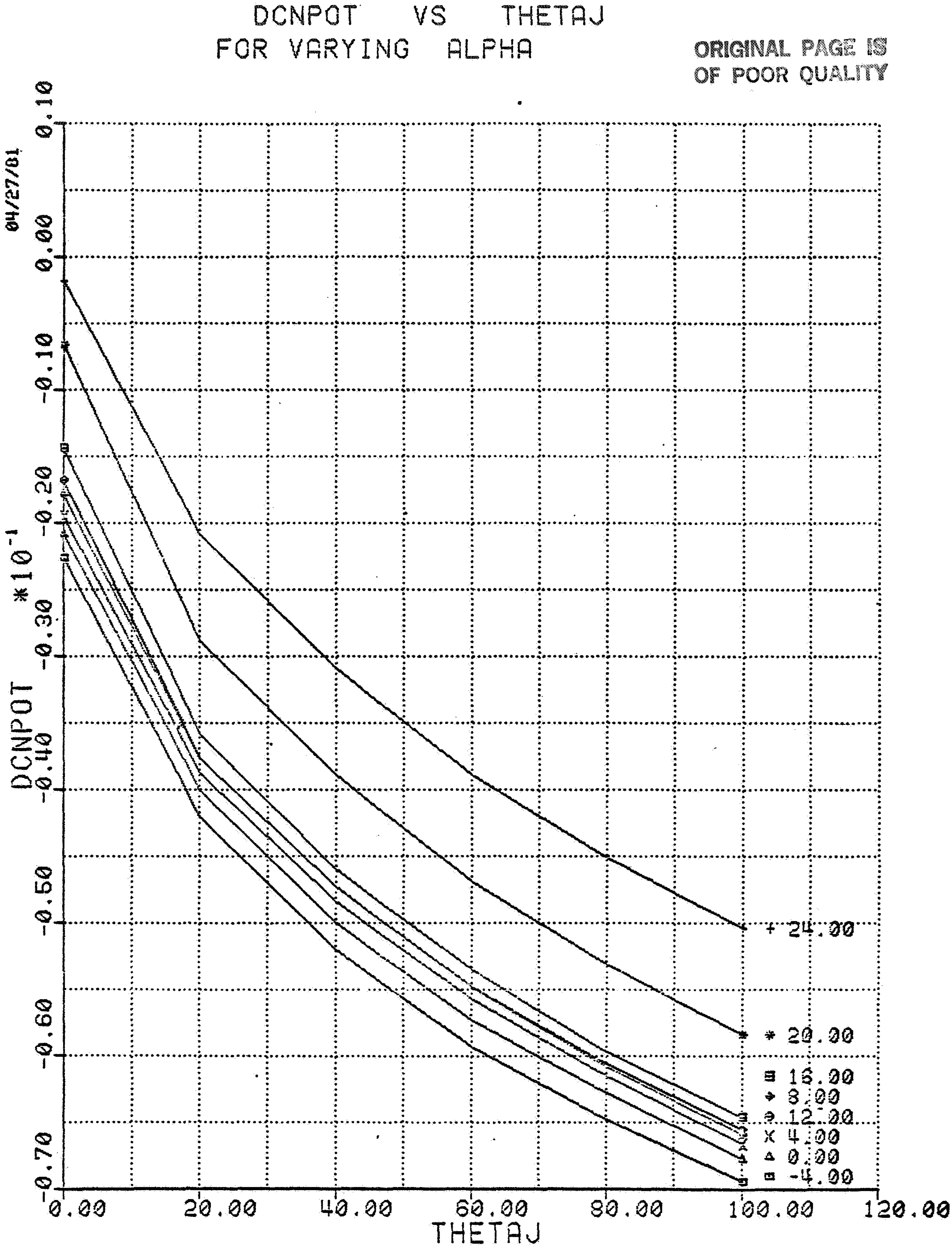


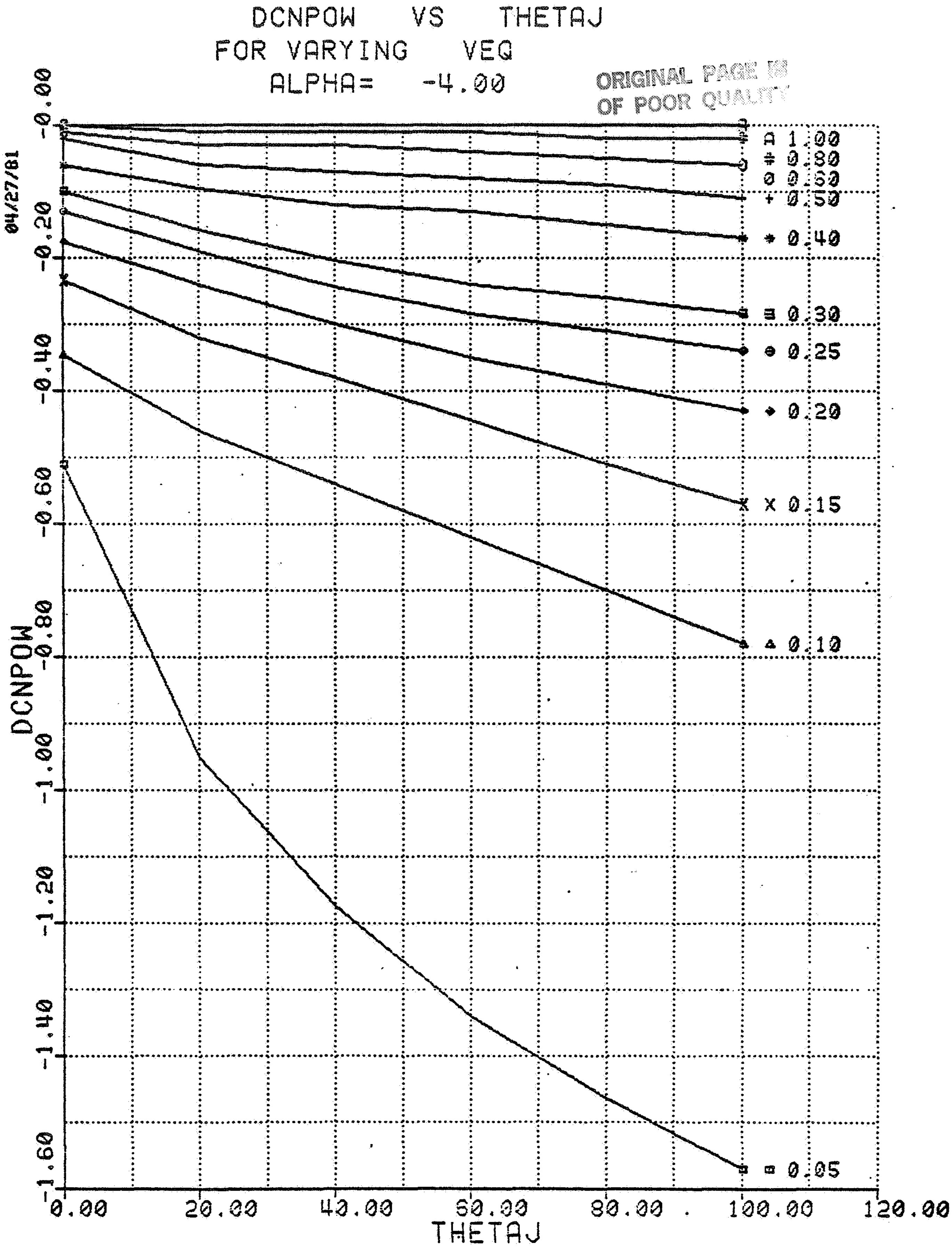

DCNJ25 VS ALPC
FOR VARYING VEQ
04/27/81
DCNJ25
3.20
2.80
2.40
2.00
1.60
1.20
0.80
0.40
0.00
2.00
7.00
12.00
17.00
22.00
27.00
32.00
ALPC
▫ 0.13
▲ 0.18
X 0.23
◆ 0.28
● 0.33
⊞ 0.38
✱ 0.43
+ 0.48
0 0.53
‡ 0.58
A 0.63
B 0.68
C 0.73

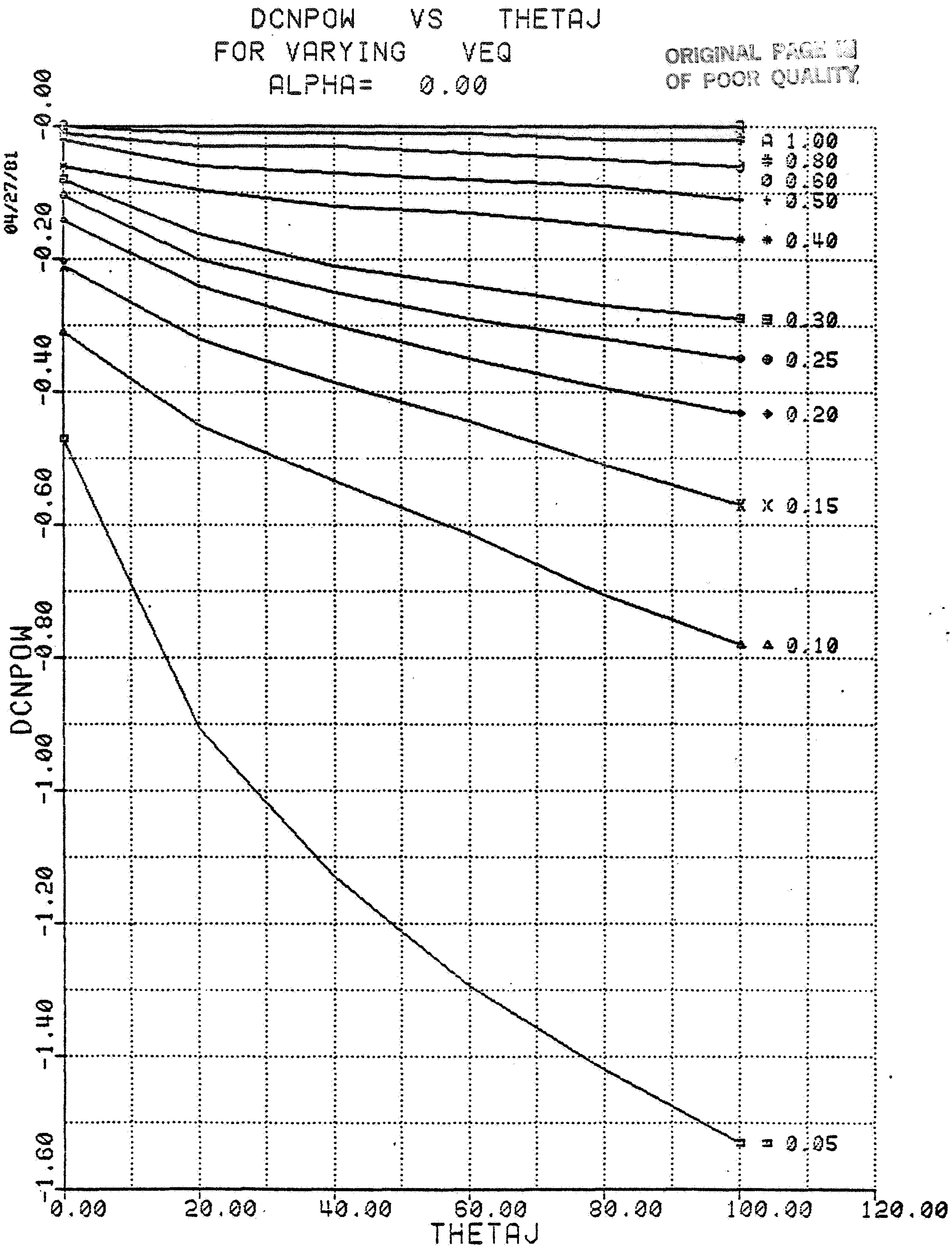

DCNJ45 VS THETAJ
04/27/81
DCNJ45
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
THETAJ
4.00
8.00
12.00
16.00
20.00
24.00
28.00

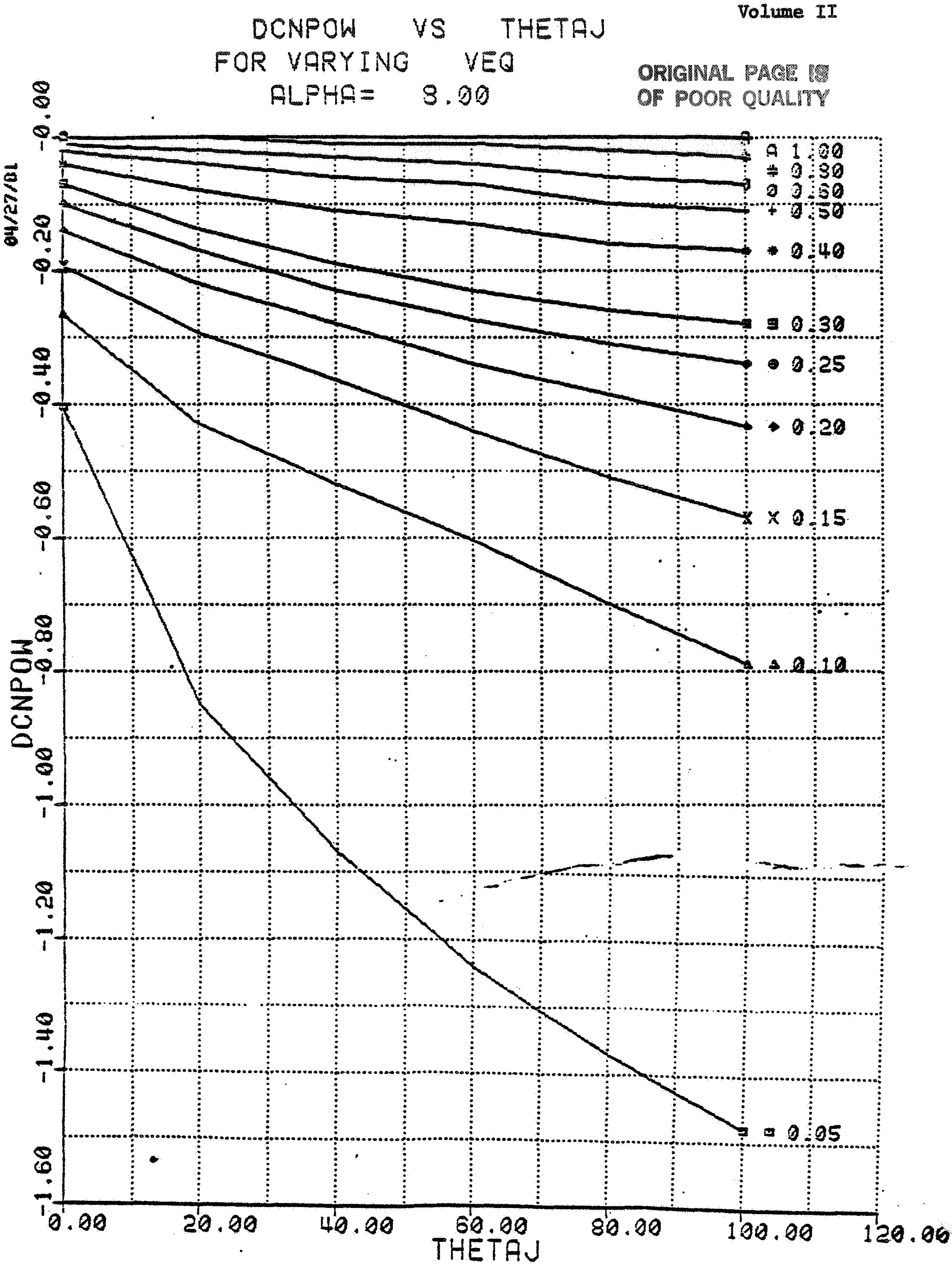
DCNJ62 VS THETAJ

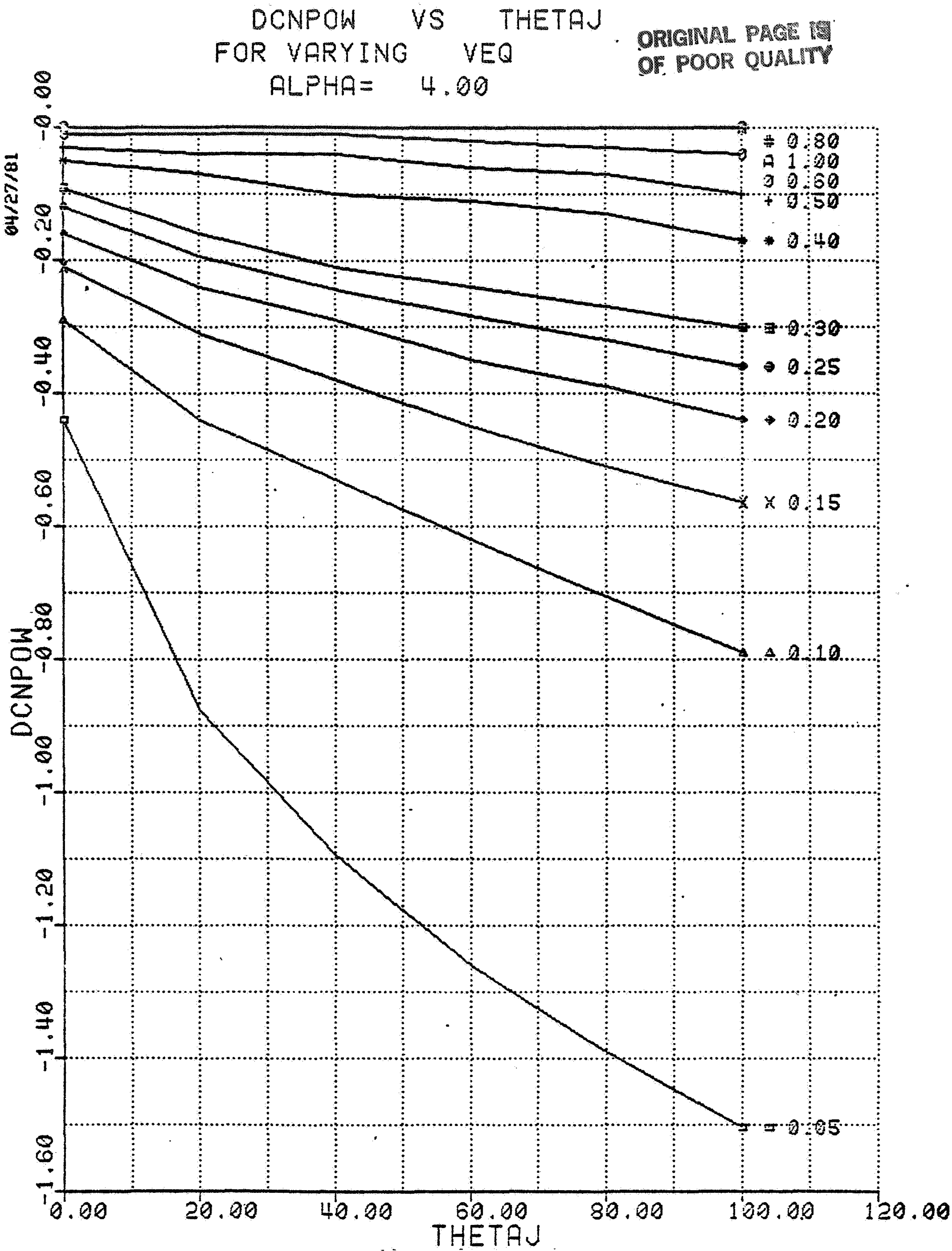


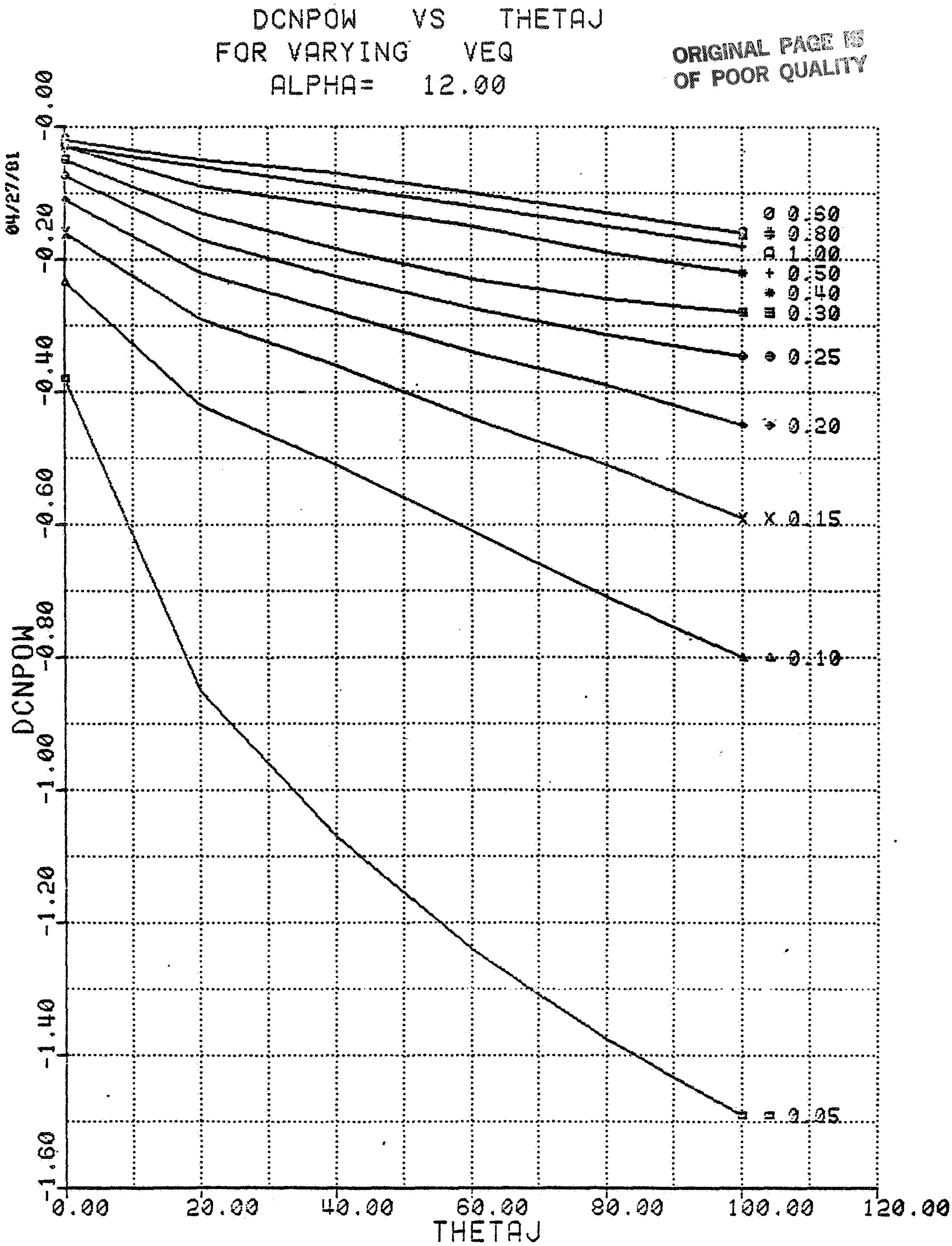

DCNPOT VS THETAJ
FOR VARYING ALPHA
04/27/81
DCNPOT *10^-1
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-0.70
THETAJ
0.00
20.00
40.00
60.00
80.00
100.00
120.00
+ 24.00
* 20.00
16.00
8.00
12.00
X 4.00
0.00
-4.00

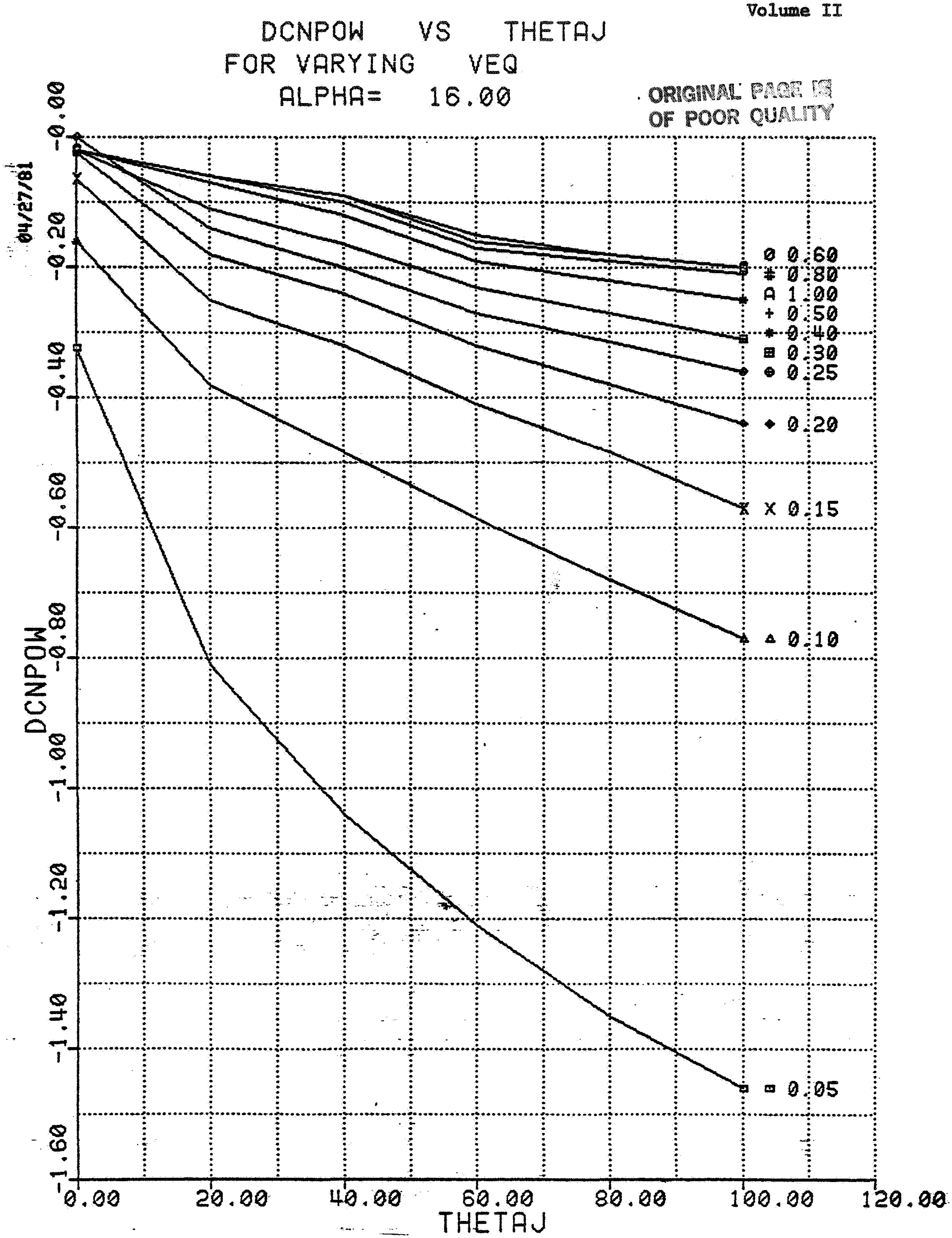

DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= -4.00
04/27/81
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
DCNPOW
0.00
20.00
40.00
60.00
80.00
100.00
120.00
THETAJ
1.00
0.80
0.60
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

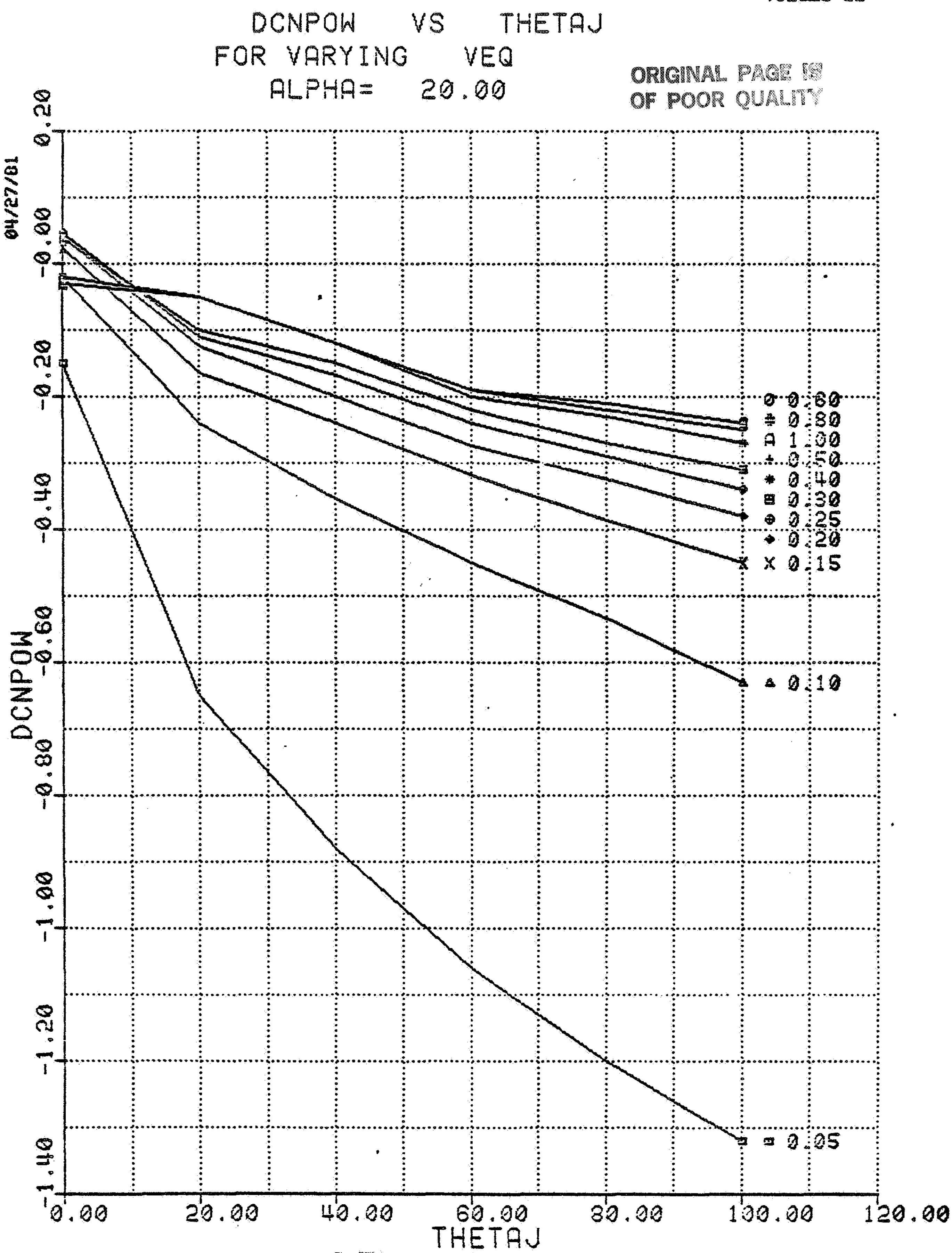

DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= 0.00
04/27/81
DCNPOW
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
1.00
0.80
0.60
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

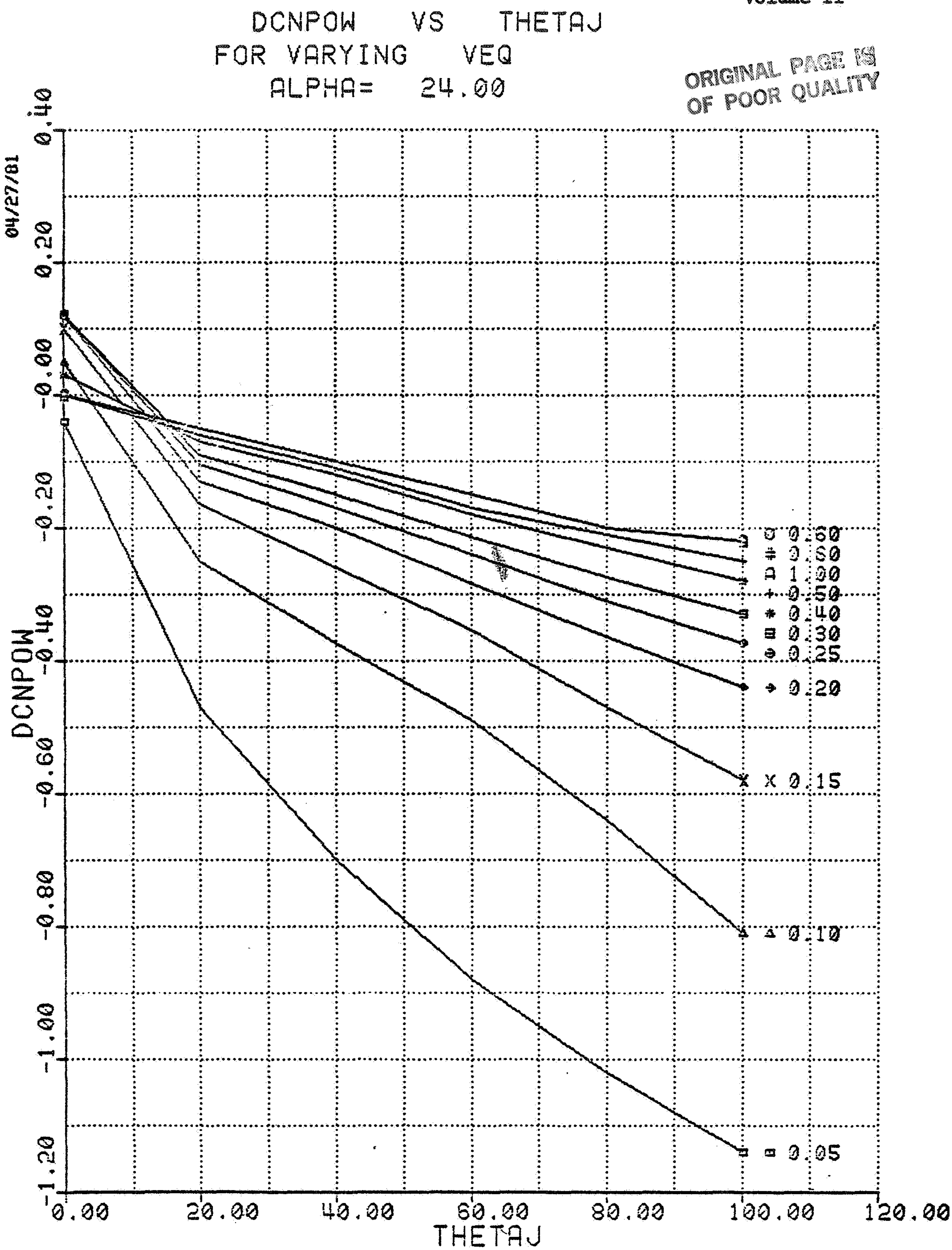

DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= 8.00
04/27/81
DCNPOW
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
1.00
0.80
0.60
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

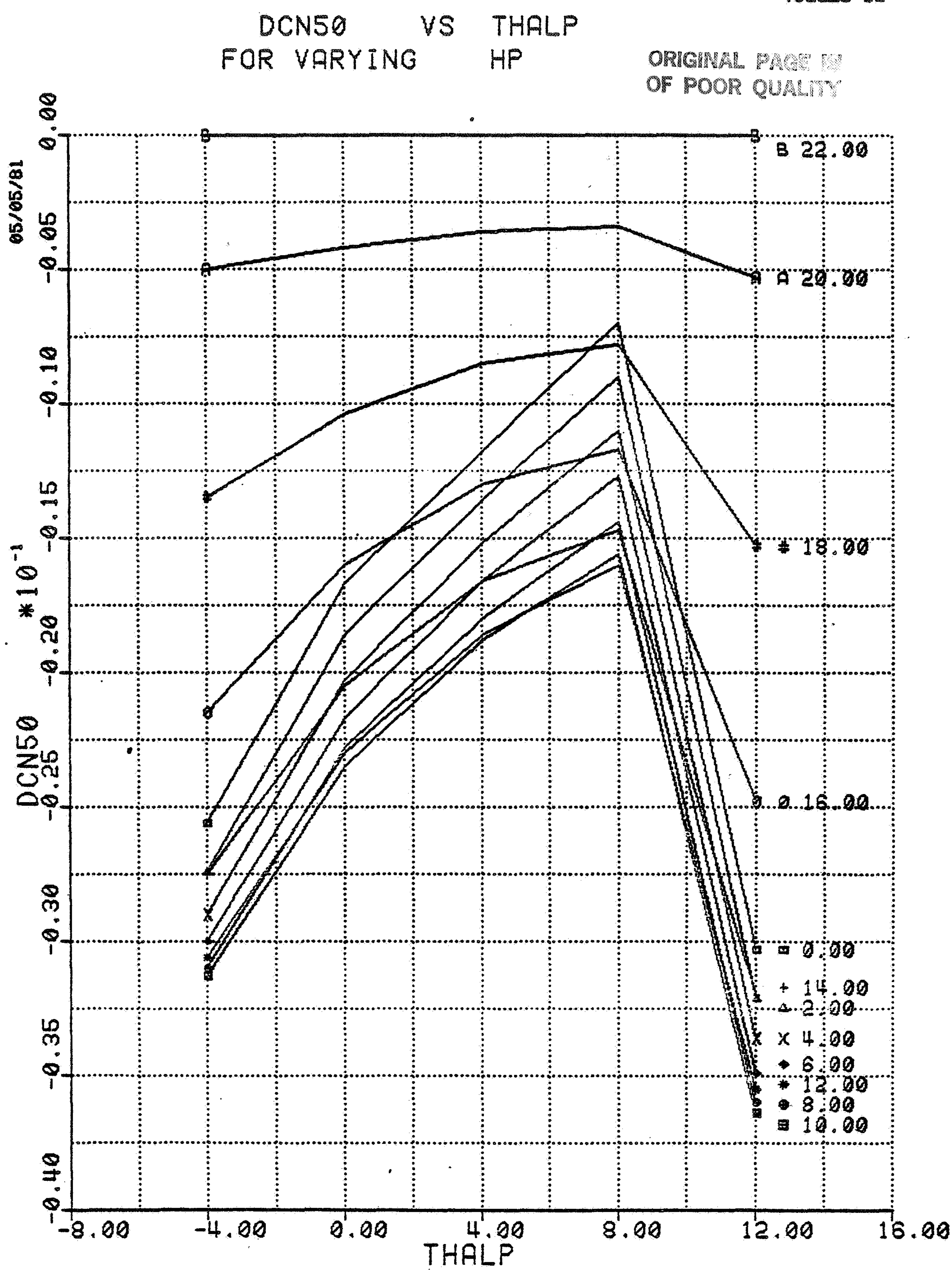

DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= 4.00
04/27/81
DCNPOW
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
0.80
1.00
0.60
+ 0.50
* 0.40
0.30
0.25
0.20
X 0.15
Δ 0.10
0.05


DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= 12.00
04/27/81
DCNPOW
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

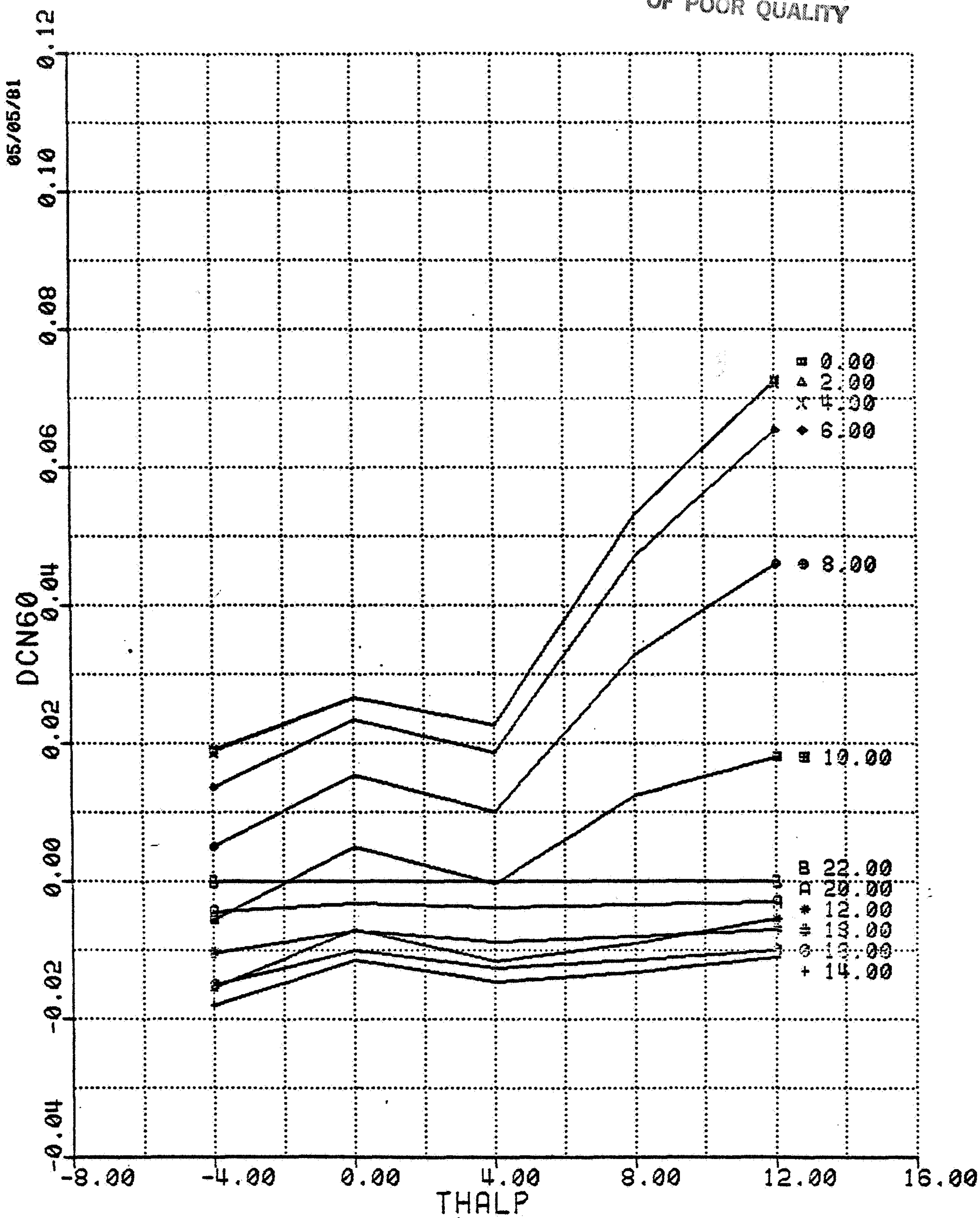

DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= 16.00
04/27/81
DCNPOW
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

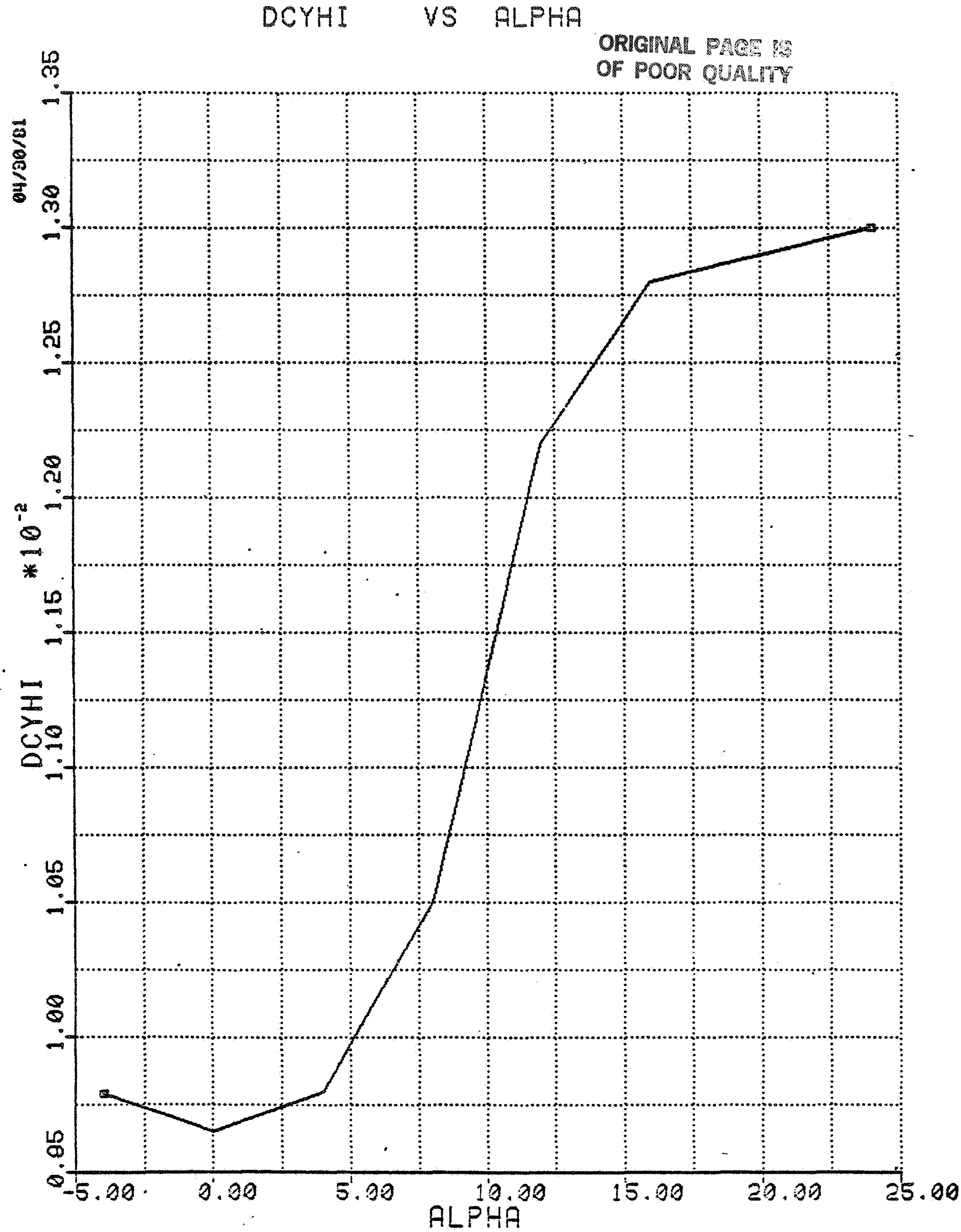

DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= 20.00
ORIGINAL PAGE IS
OF POOR QUALITY
04/27/81
0.20
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
DCNPOW
0.00
20.00
40.00
60.00
80.00
100.00
120.00
THETAJ
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05


DCNPOW VS THETAJ
FOR VARYING VEQ
ALPHA= 24.00
04/27/81
0.40
0.20
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
DCNPOW
0.00
20.00
40.00
60.00
80.00
100.00
120.00
THETAJ
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
X 0.15
0.10
0.05


DCN50 VS THALP
FOR VARYING HP
05/05/81
DCN50 *10^-1
THALP
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
-8.00
-4.00
0.00
4.00
8.00
12.00
16.00
B 22.00
A 20.00
18.00
Ø 16.00
□ 0.00
+ 14.00
△ 2.00
X 4.00
◆ 6.00
* 12.00
● 8.00
▣ 10.00

DCN60 VS THALP
FOR VARYING HP




DCYHI VS ALPHA
04/30/81
DCYHI *10^-2
0.95
1.00
1.05
1.10
1.15
1.20
1.25
1.30
1.35
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA

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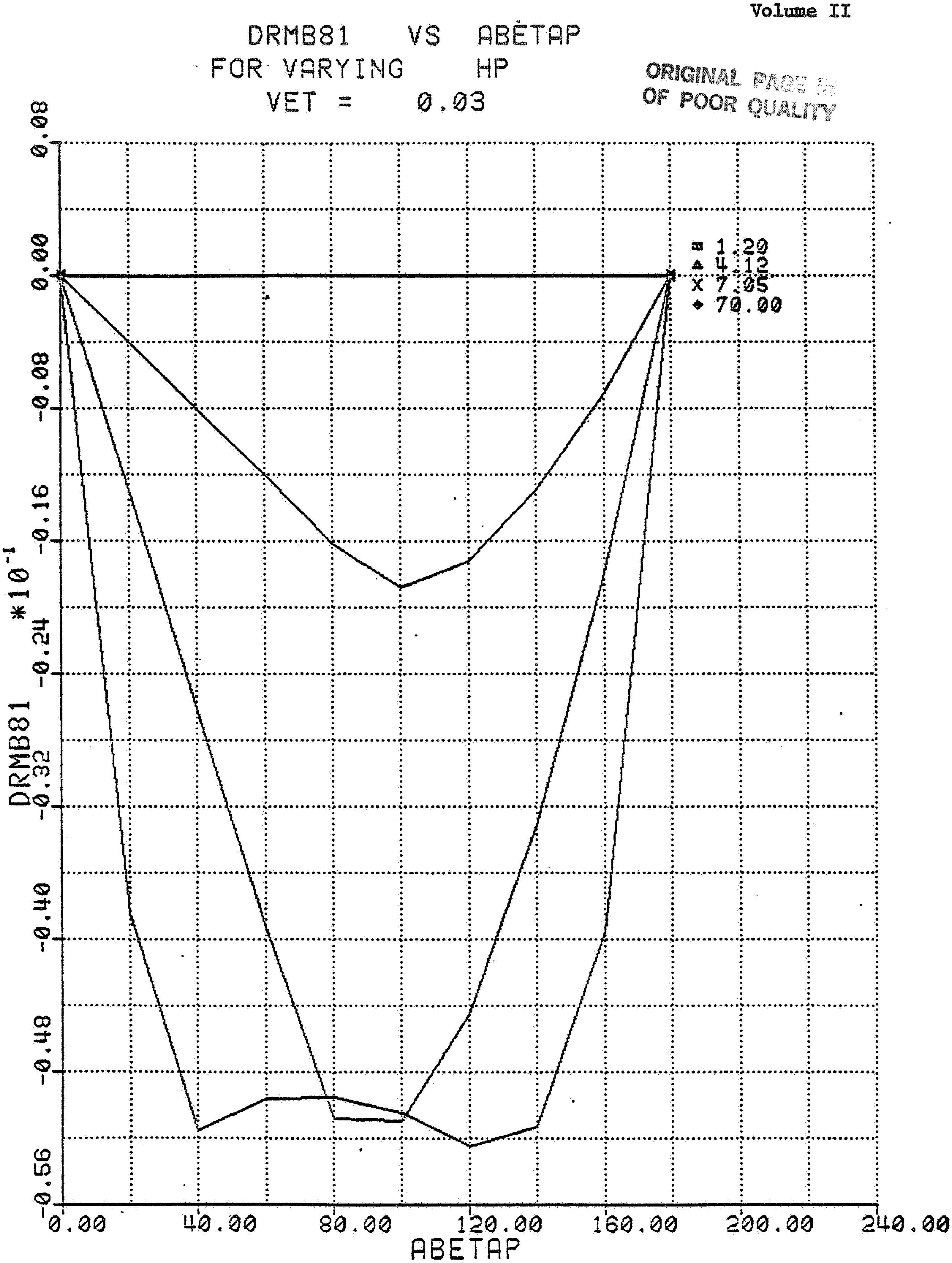
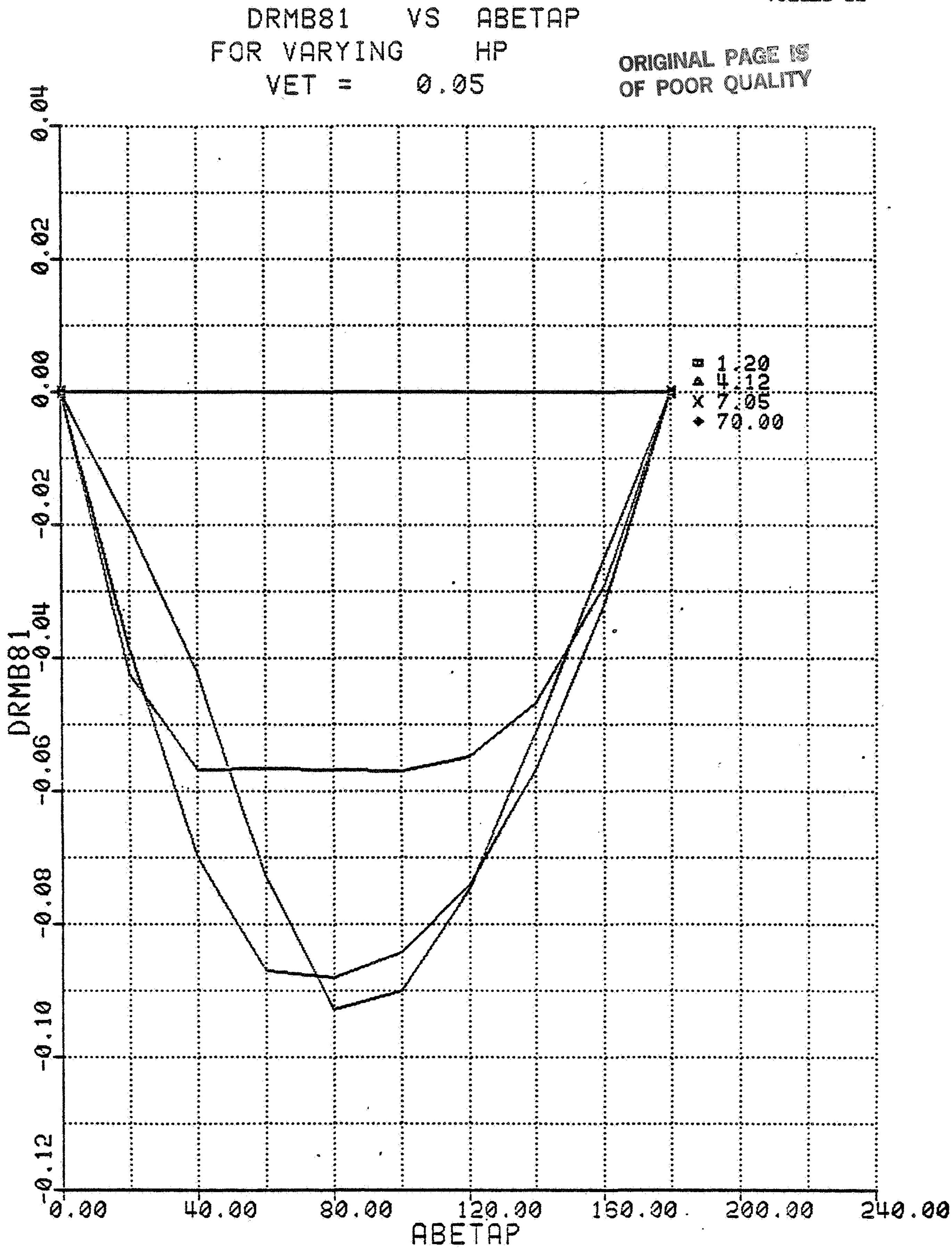
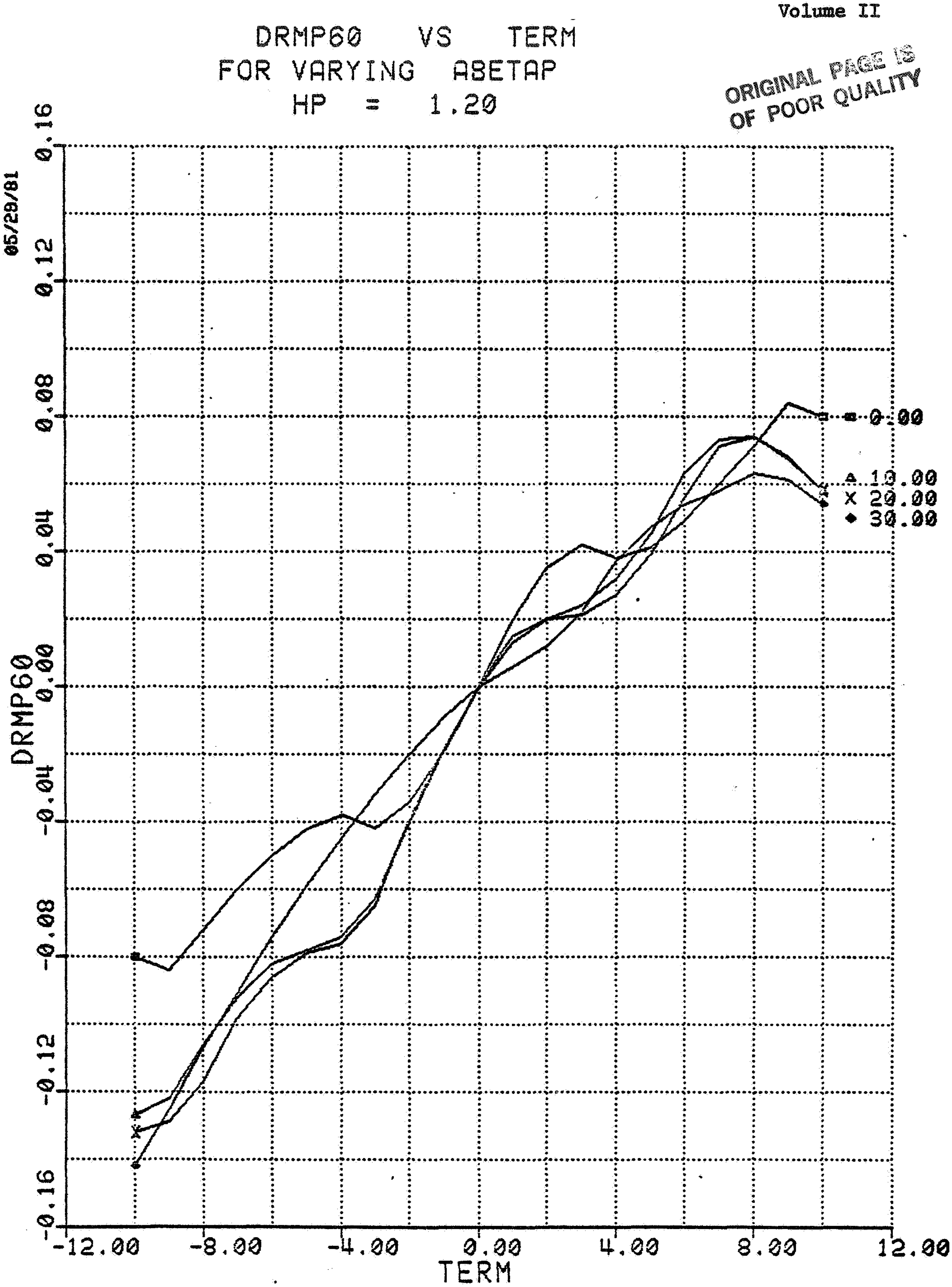
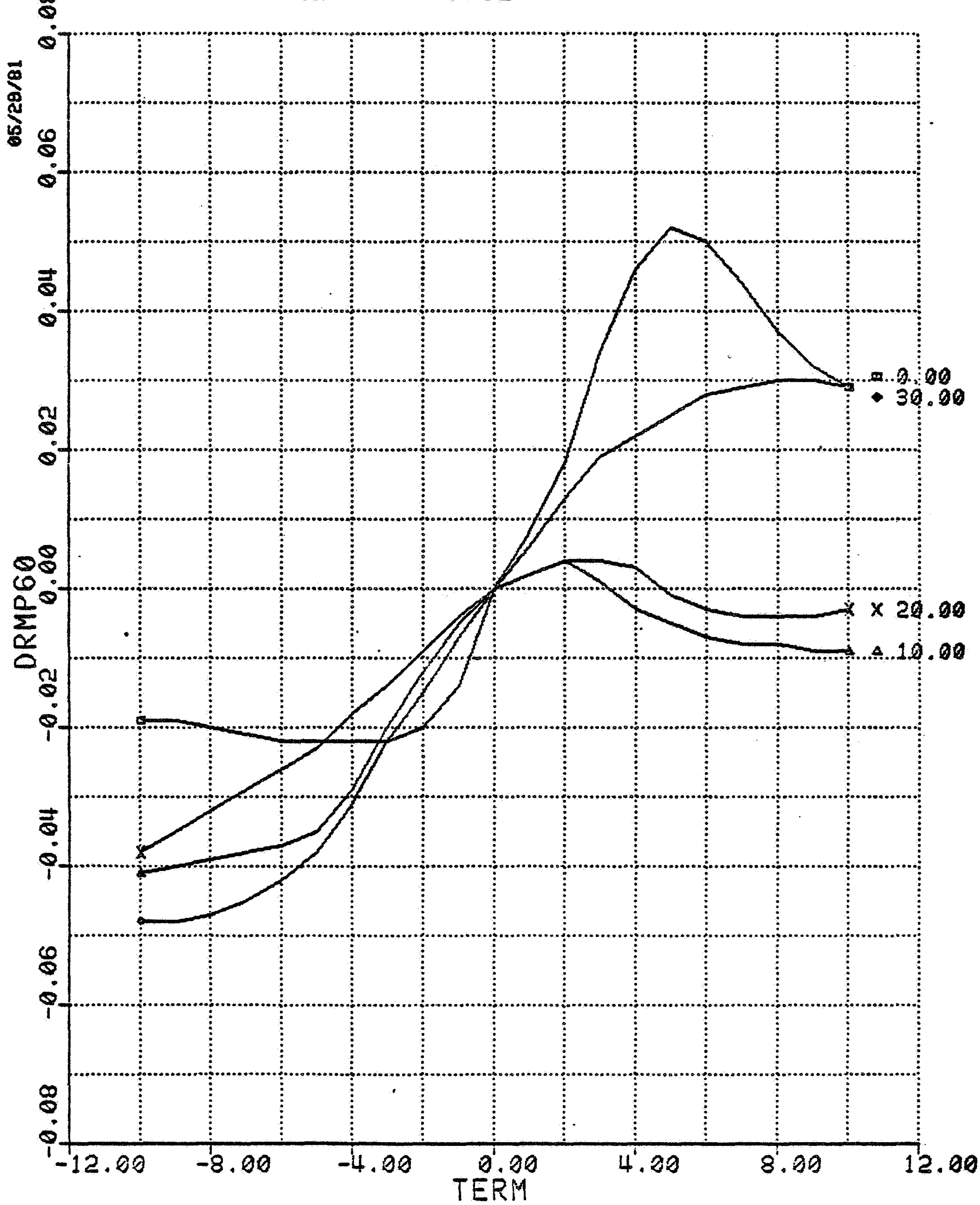
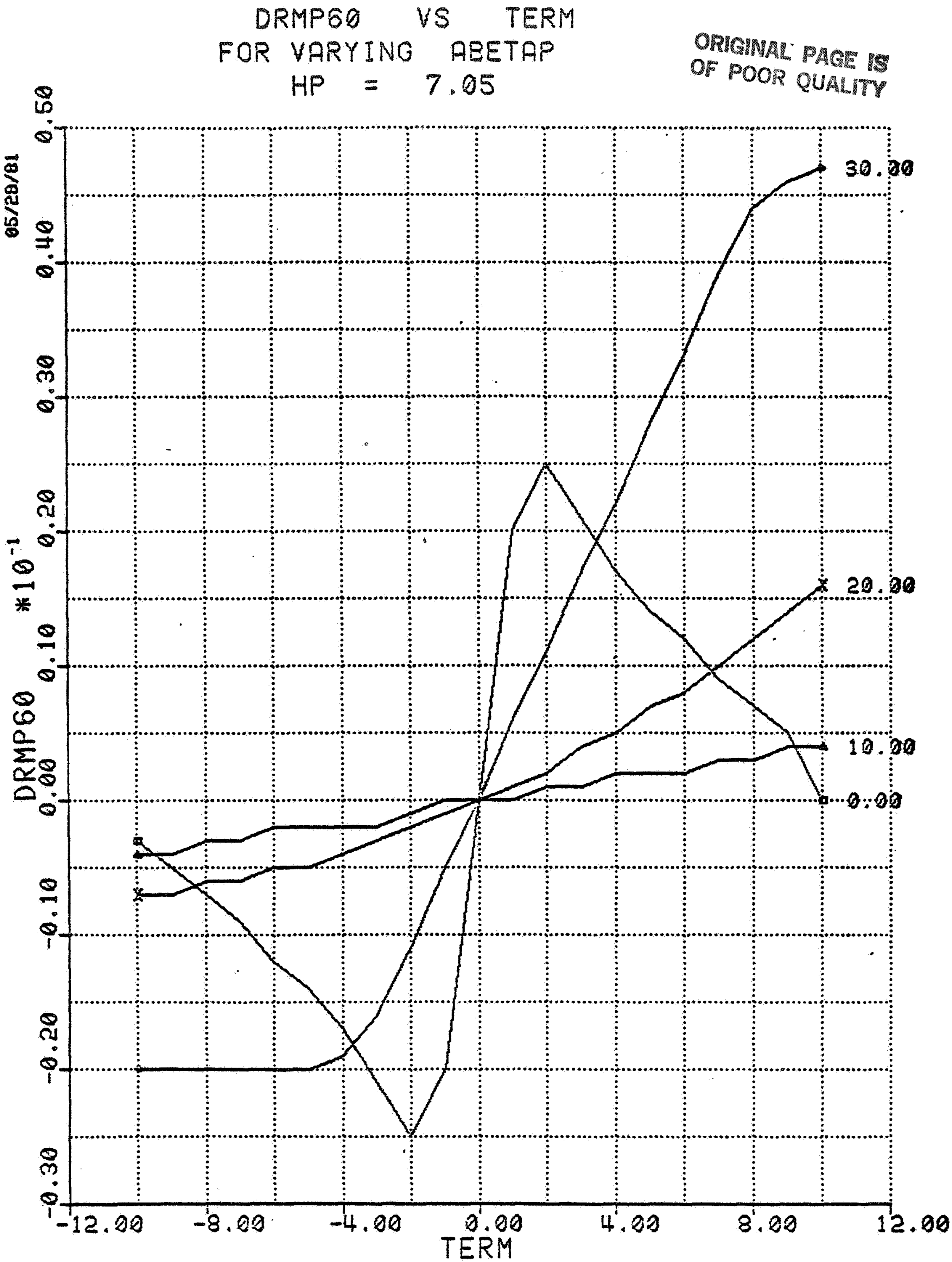


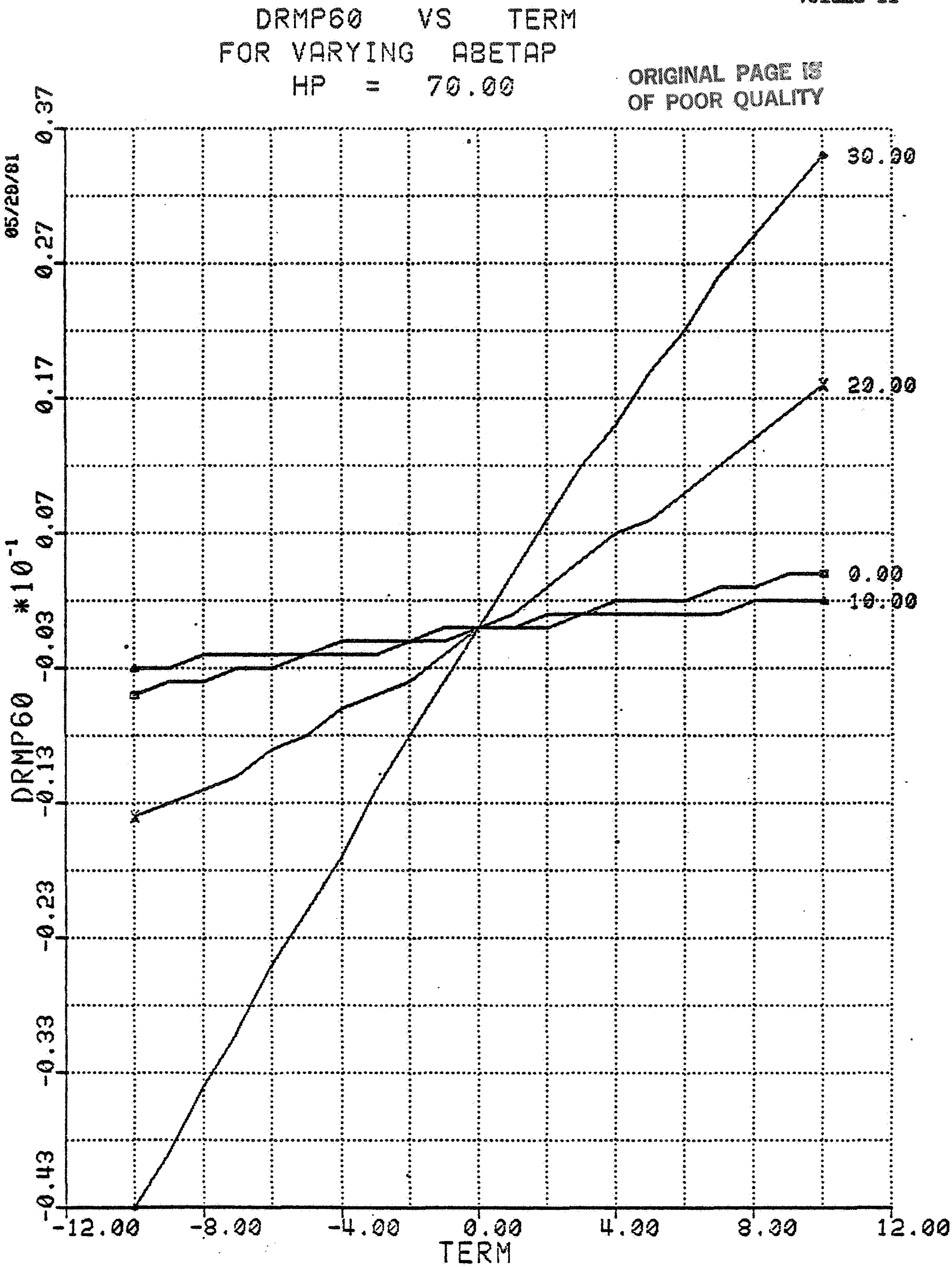

DRMB81 VS ABETAP
FOR VARYING HP
VET = 0.05
DRMB81
ABETAP
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
0.00
40.00
80.00
120.00
160.00
200.00
240.00
1.20
4.12
7.05
70.00


DRMP60 VS TERM
FOR VARYING ABETAP
HP = 1.20
05/20/81
DRMP60
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
-0.16
-12.00
-8.00
-4.00
0.00
4.00
8.00
12.00
TERM
0.00
10.00
20.00
30.00

DRMP60 VS TERM
FOR VARYING ABETAP
HP = 4.12




DRMP60 VS TERM
FOR VARYING ABETAP
HP = 7.05
05/28/81
DRMP60 *10⁻¹
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
30.00
20.00
10.00
0.00
-12.00
-8.00
-4.00
0.00
4.00
8.00
12.00
TERM


DRMP60 VS TERM
FOR VARYING ABETAP
HP = 70.00
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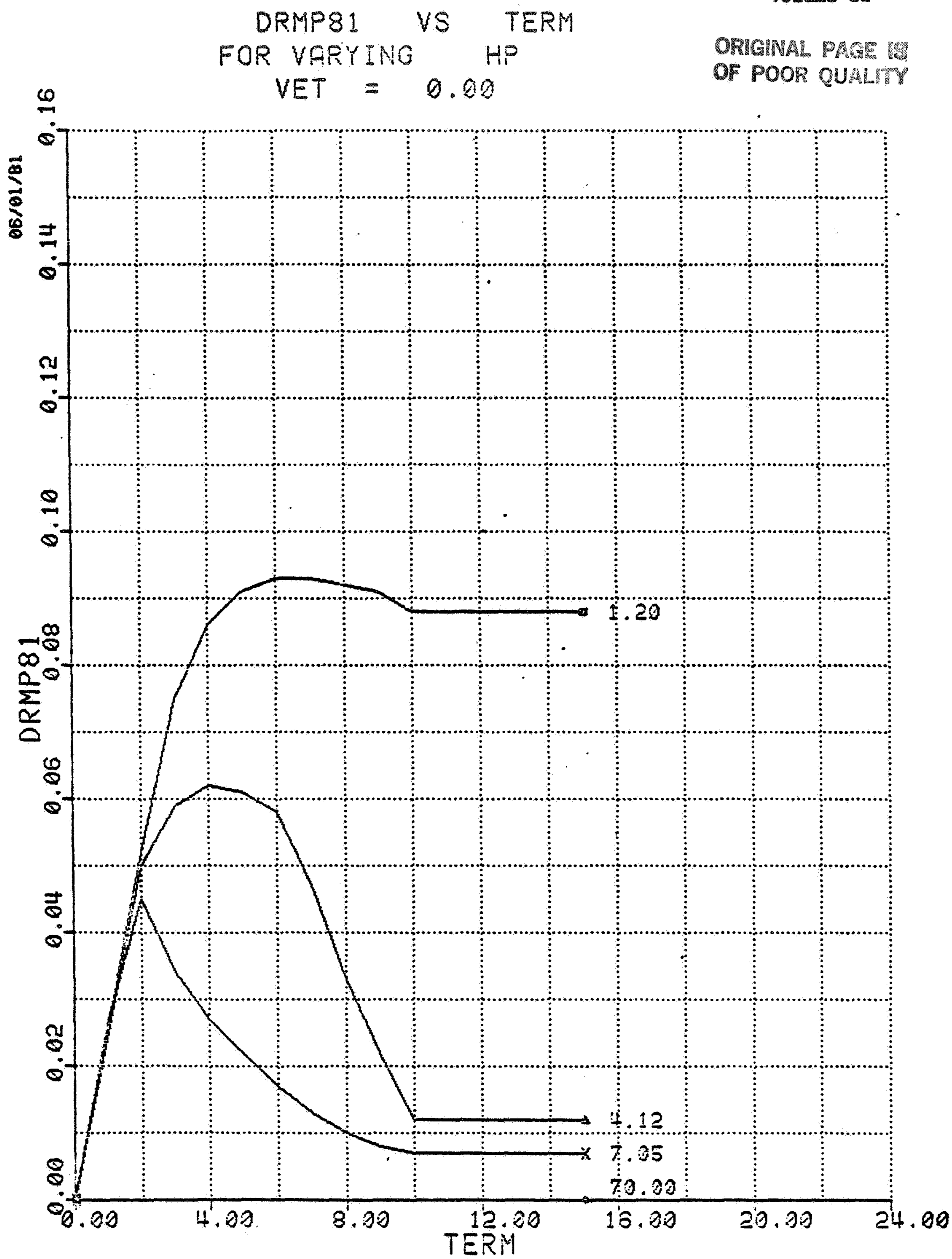
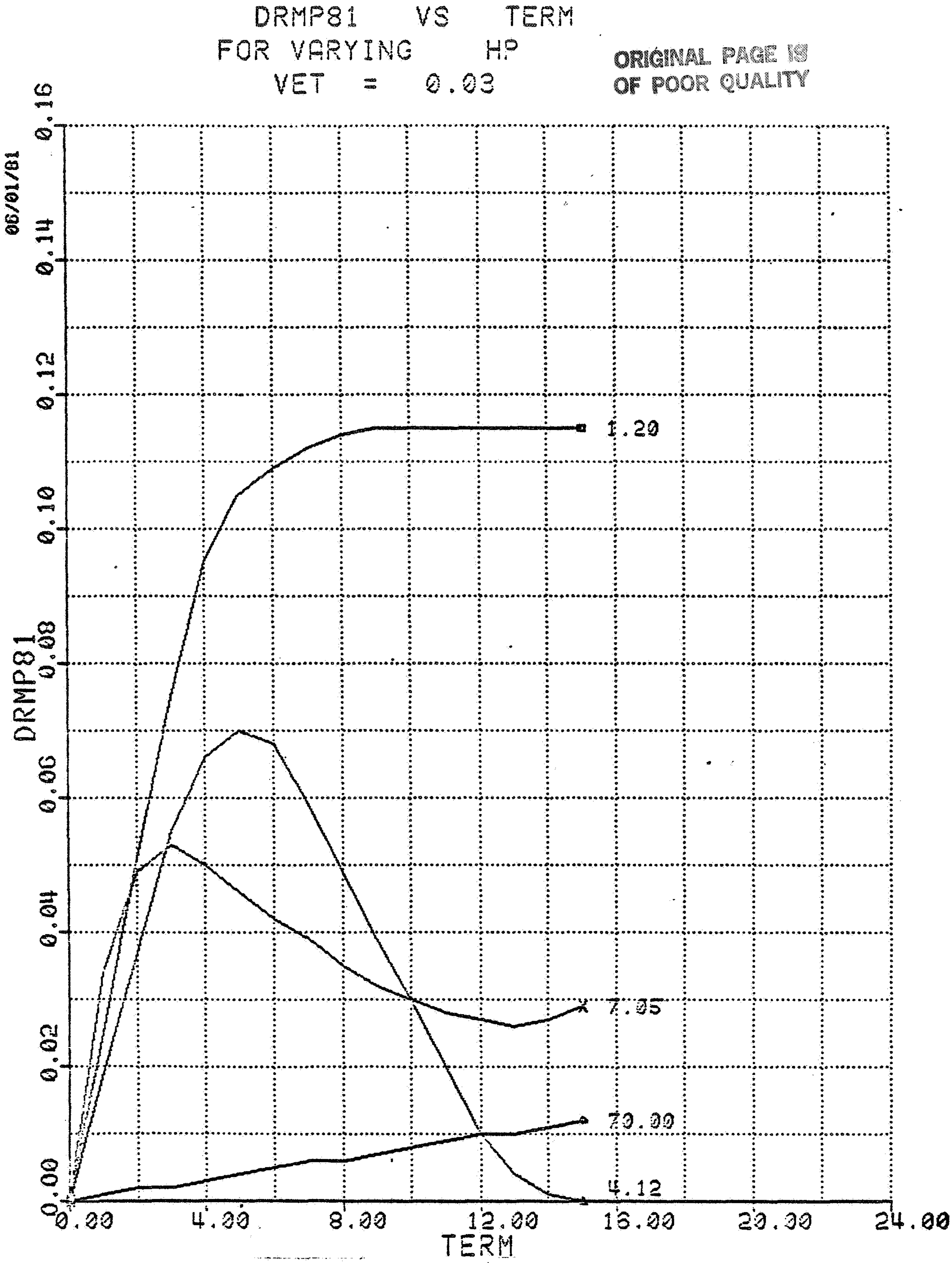
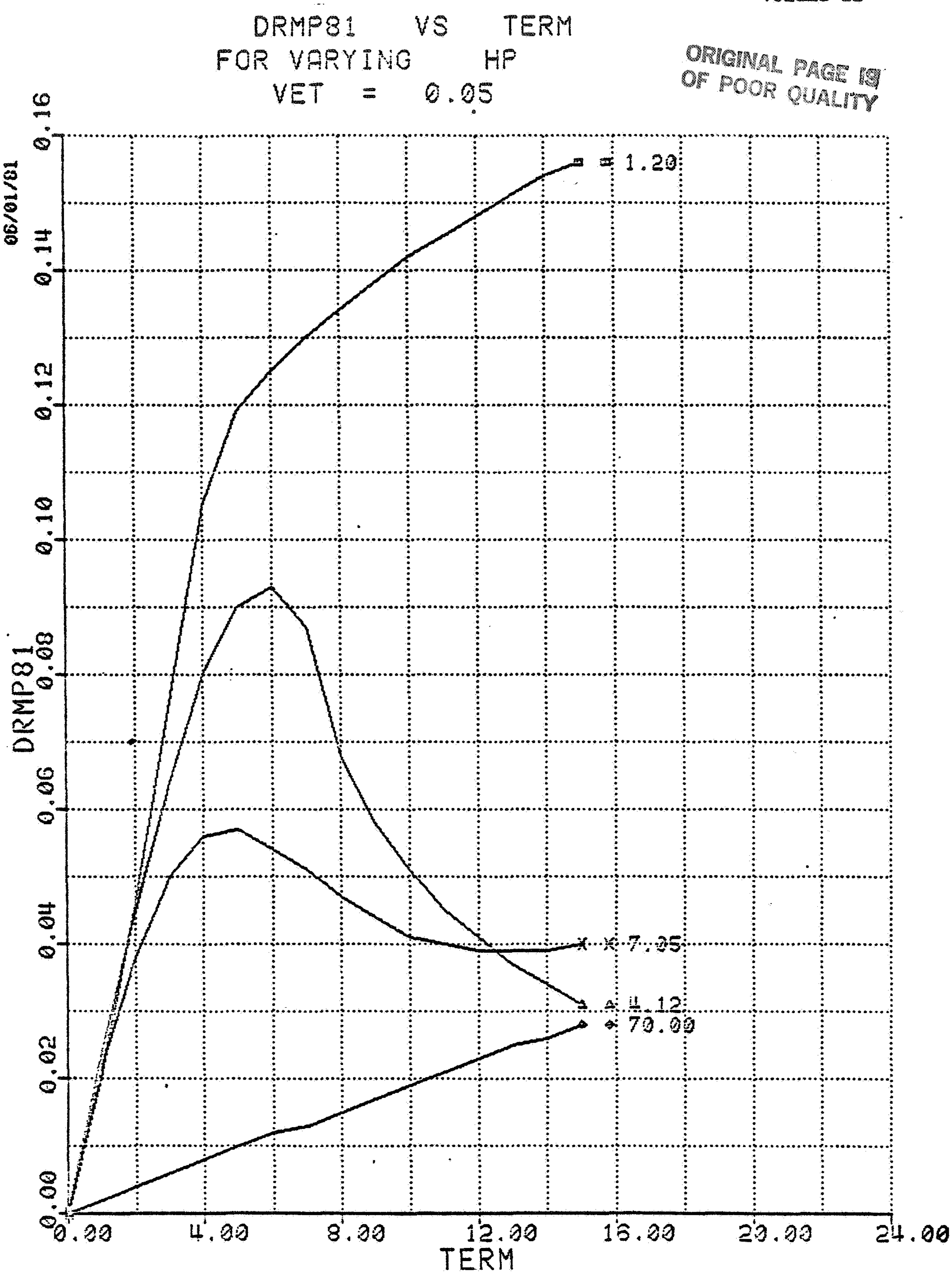
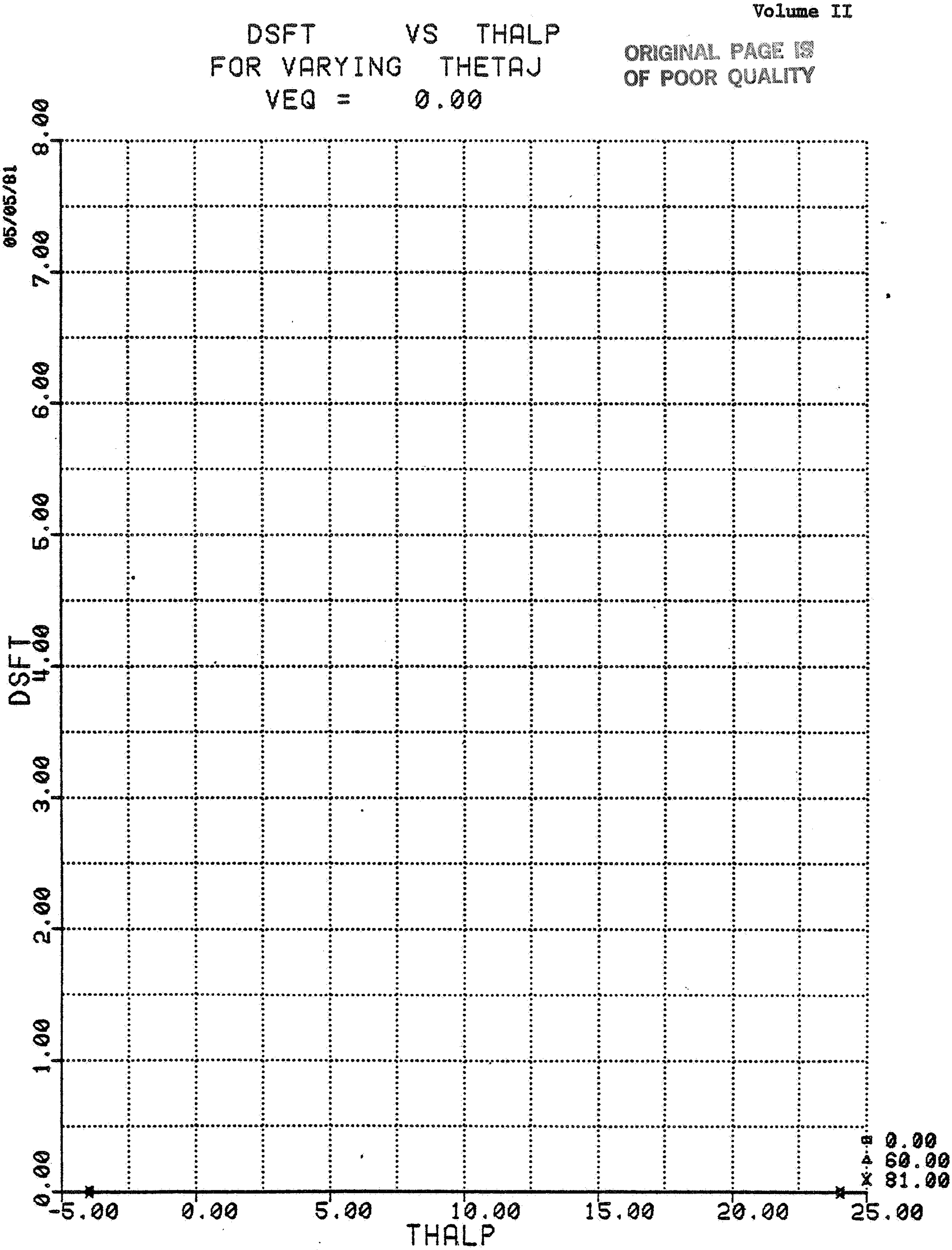
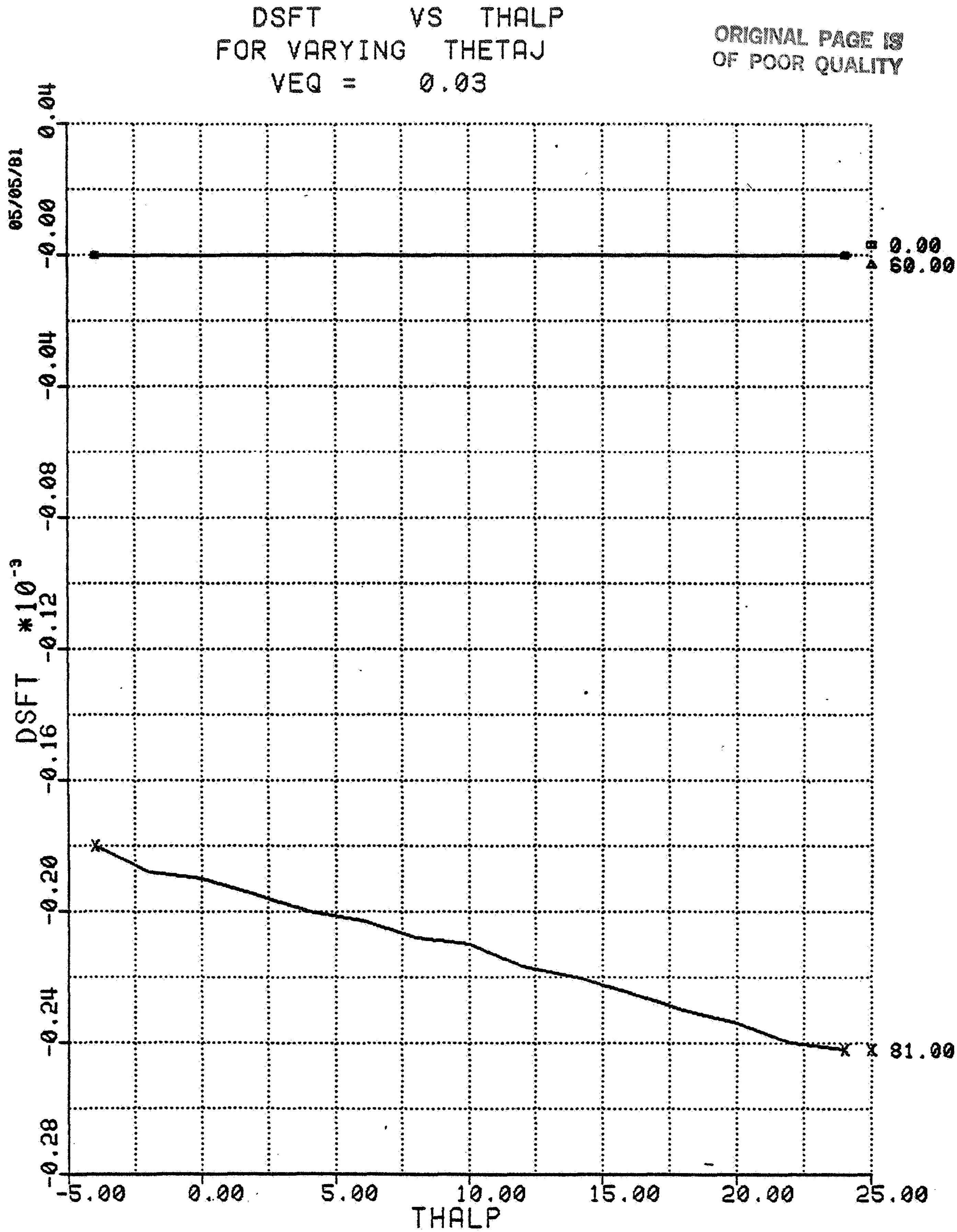
05/20/81
0.37
0.27
0.17
0.07
-0.03
-0.13
-0.23
-0.33
-0.43
DRMP60 *10^{-1}
30.00
20.00
0.00
10.00
-12.00
-8.00
-4.00
0.00
4.00
8.00
12.00
TERM

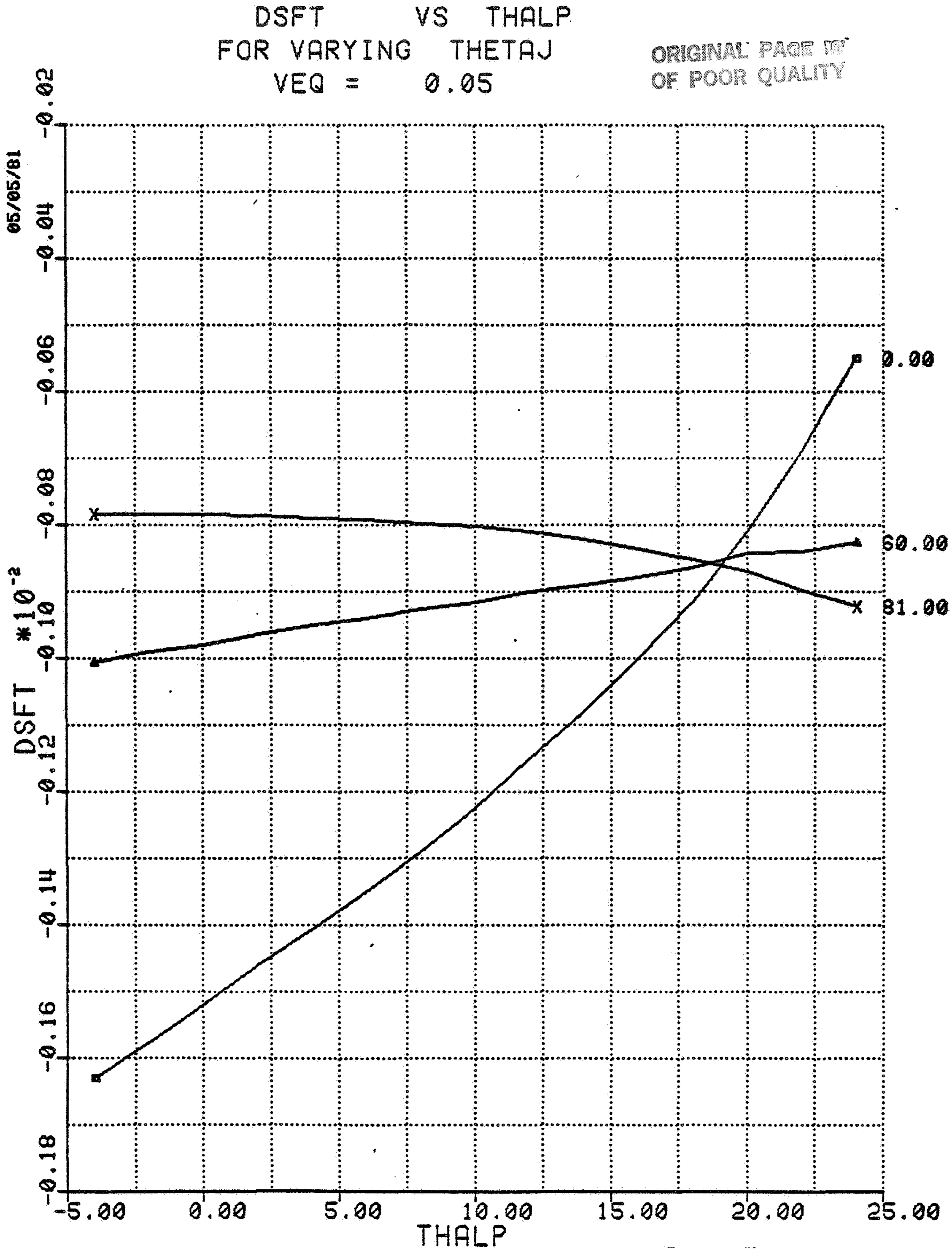

DRMP81 VS TERM
FOR VARYING HP
VET = 0.00
06/01/81
DRMP81
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
TERM
0.00
4.00
8.00
12.00
16.00
20.00
24.00
1.20
4.12
7.05
70.00

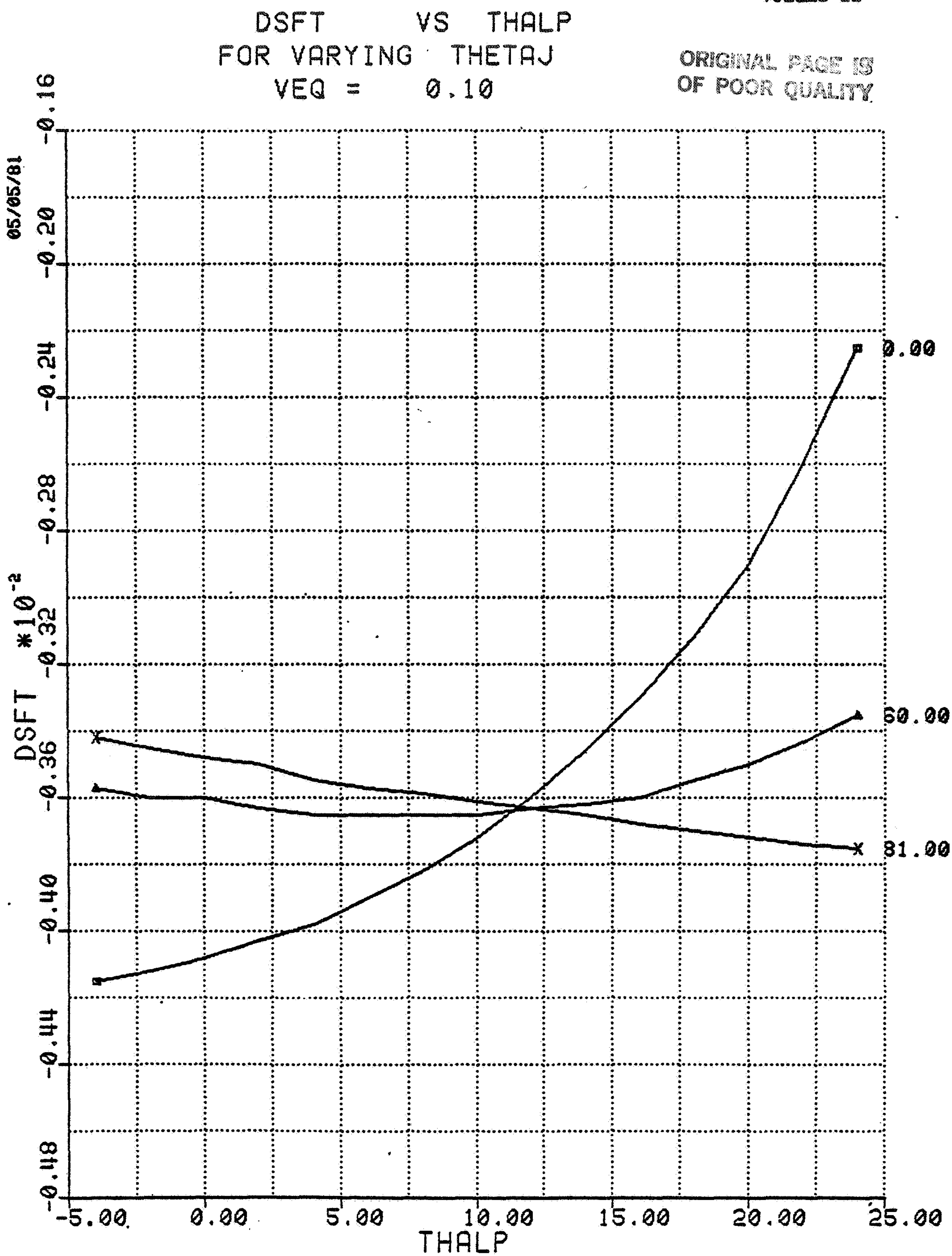

DRMP81 VS TERM
FOR VARYING HP
VET = 0.03
06/01/81
DRMP81
TERM
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.00
4.00
8.00
12.00
16.00
20.00
24.00
1.20
7.05
70.00
4.12


DRMP81 VS TERM
FOR VARYING HP
VET = 0.05
06/01/81
DRMP81
TERM
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.00
4.00
8.00
12.00
16.00
20.00
24.00
1.20
7.05
4.12
70.00


DSFT VS THALP
FOR VARYING THETAJ
VEQ = 0.00
05/05/81
DSFT
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
0.00
60.00
81.00


DSFT VS THALP
FOR VARYING THETAJ
VEQ = 0.03
05/05/81
DSFT *10^-3
0.04
-0.00
-0.04
-0.08
-0.12
-0.16
-0.20
-0.24
-0.28
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
0.00
60.00
81.00


DSFT VS THALP
FOR VARYING THETAJ
VEQ = 0.05
05/05/81
DSFT *10^-2
THALP
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
-0.16
-0.18
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.00
60.00
81.00


DSFT VS THALP
FOR VARYING THETAJ
VEQ = 0.10
05/05/81
DSFT *10^-2
-0.16
-0.20
-0.24
-0.28
-0.32
-0.36
-0.40
-0.44
-0.48
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
0.00
60.00
81.00

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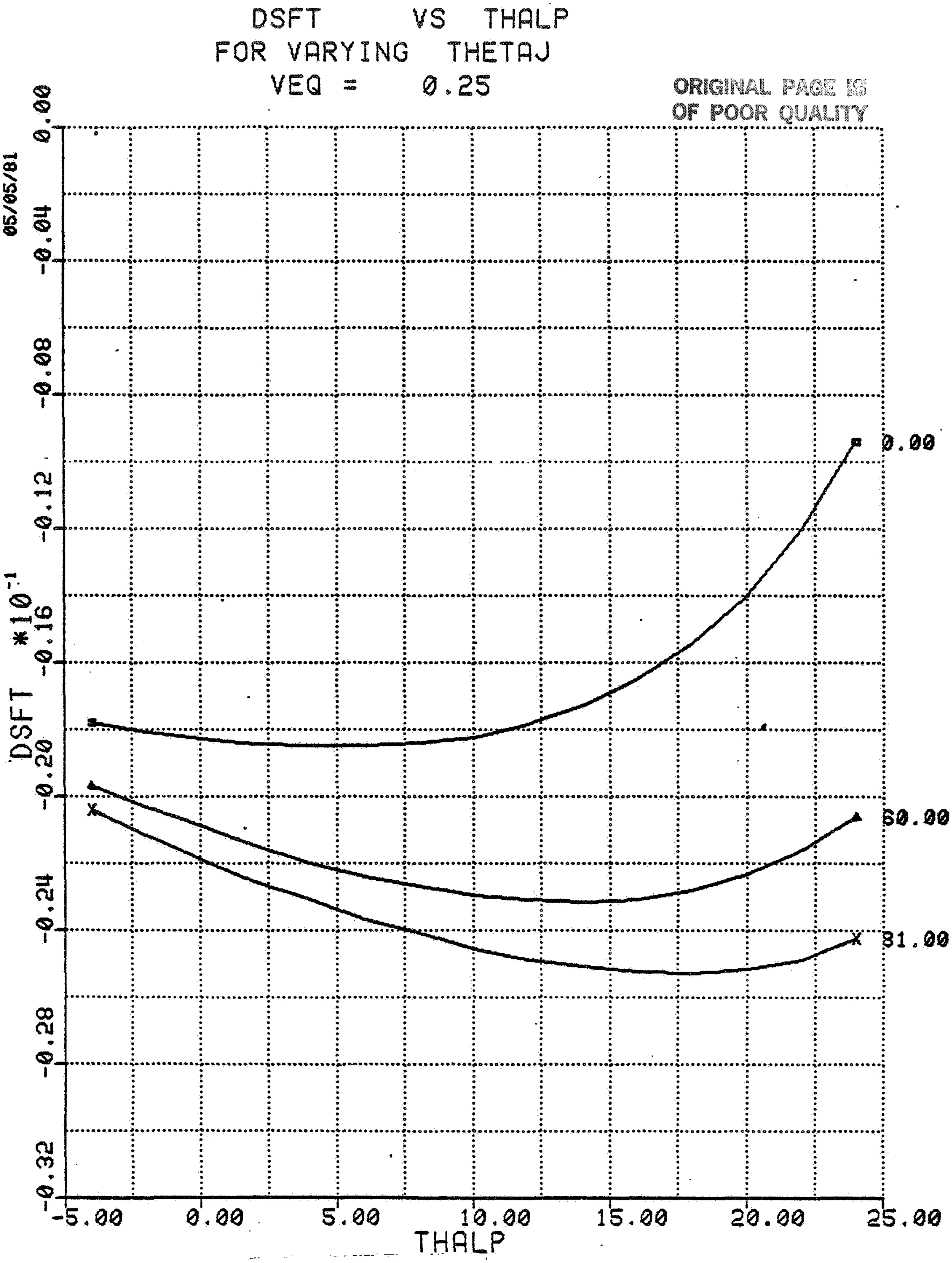
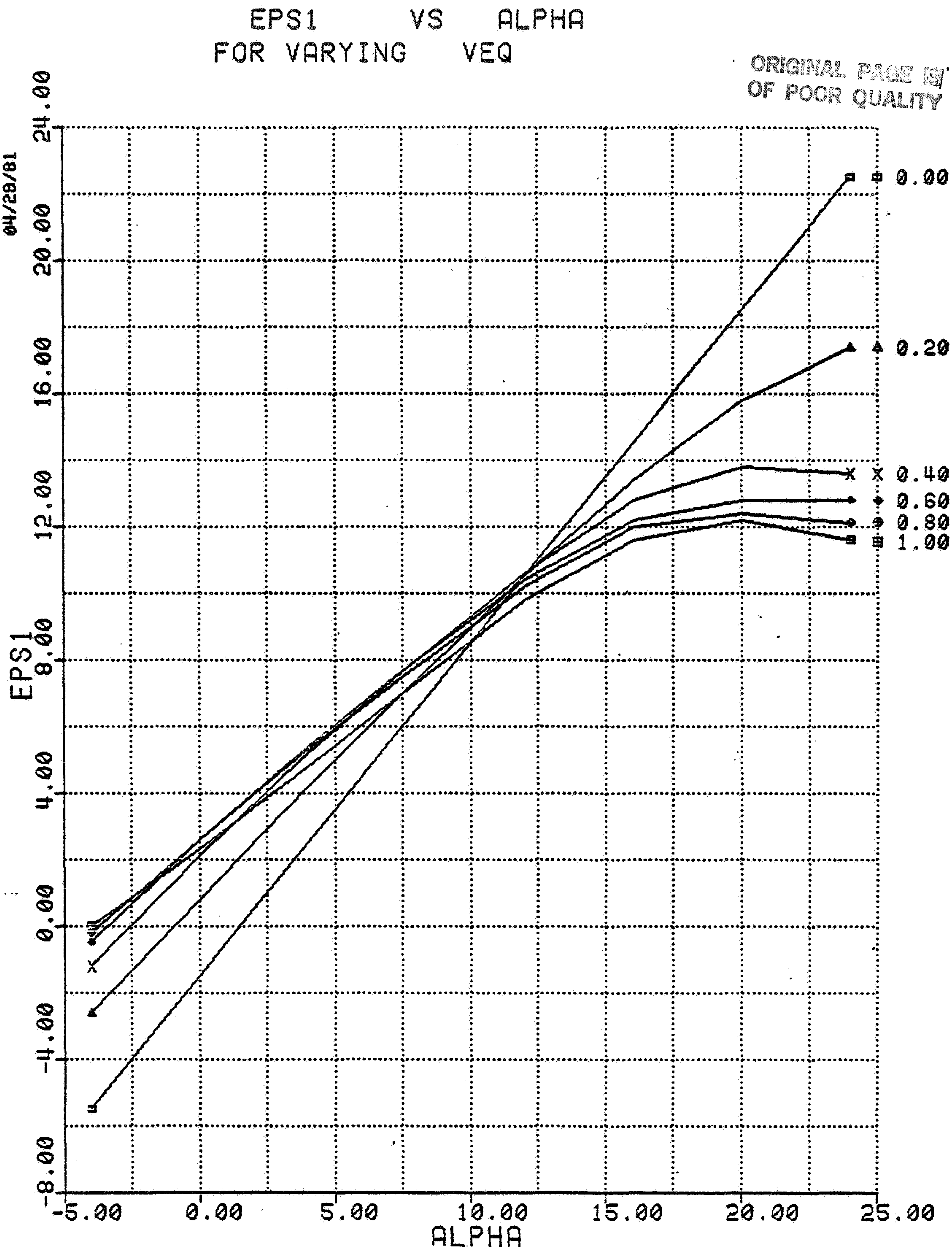
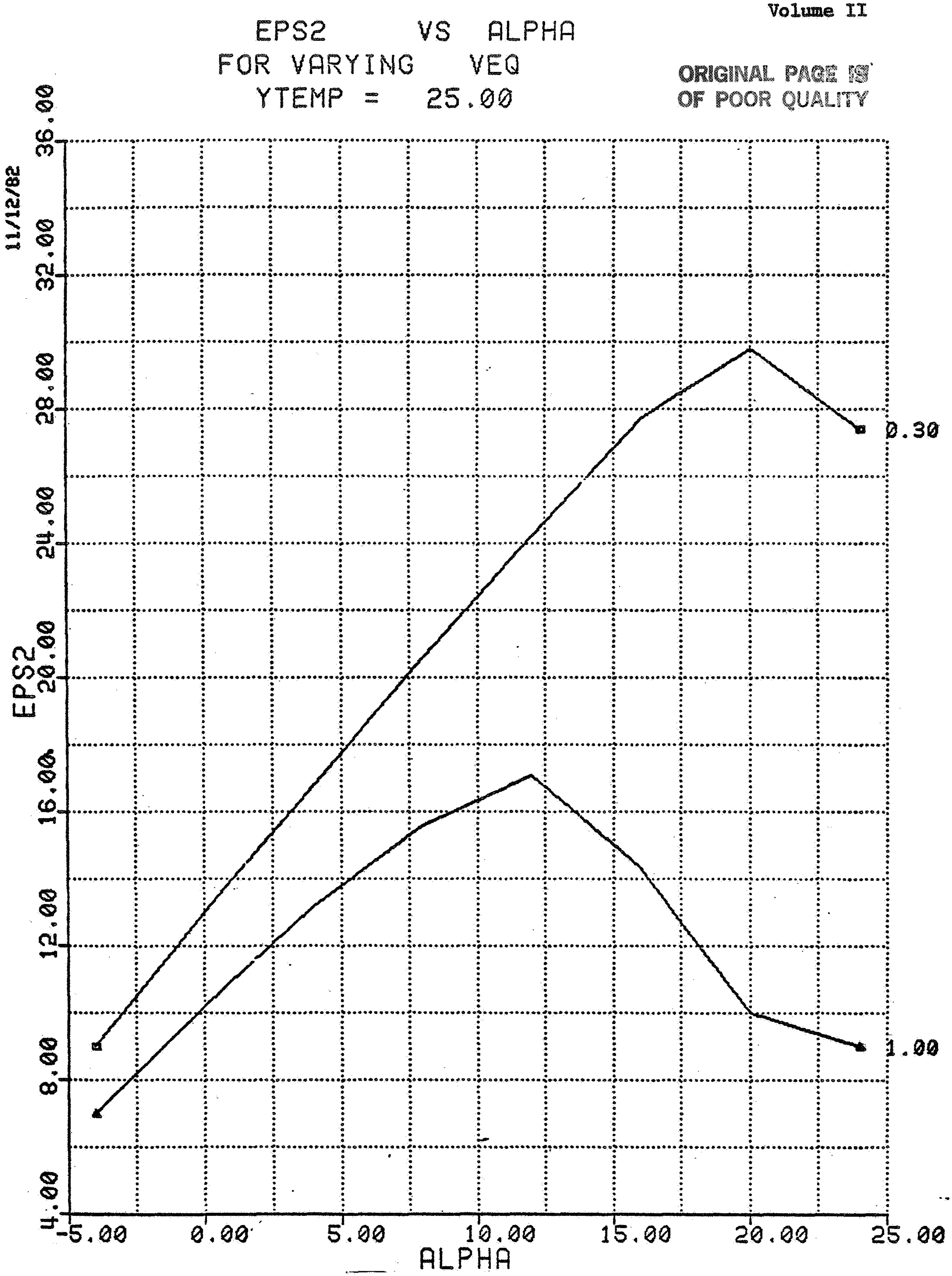
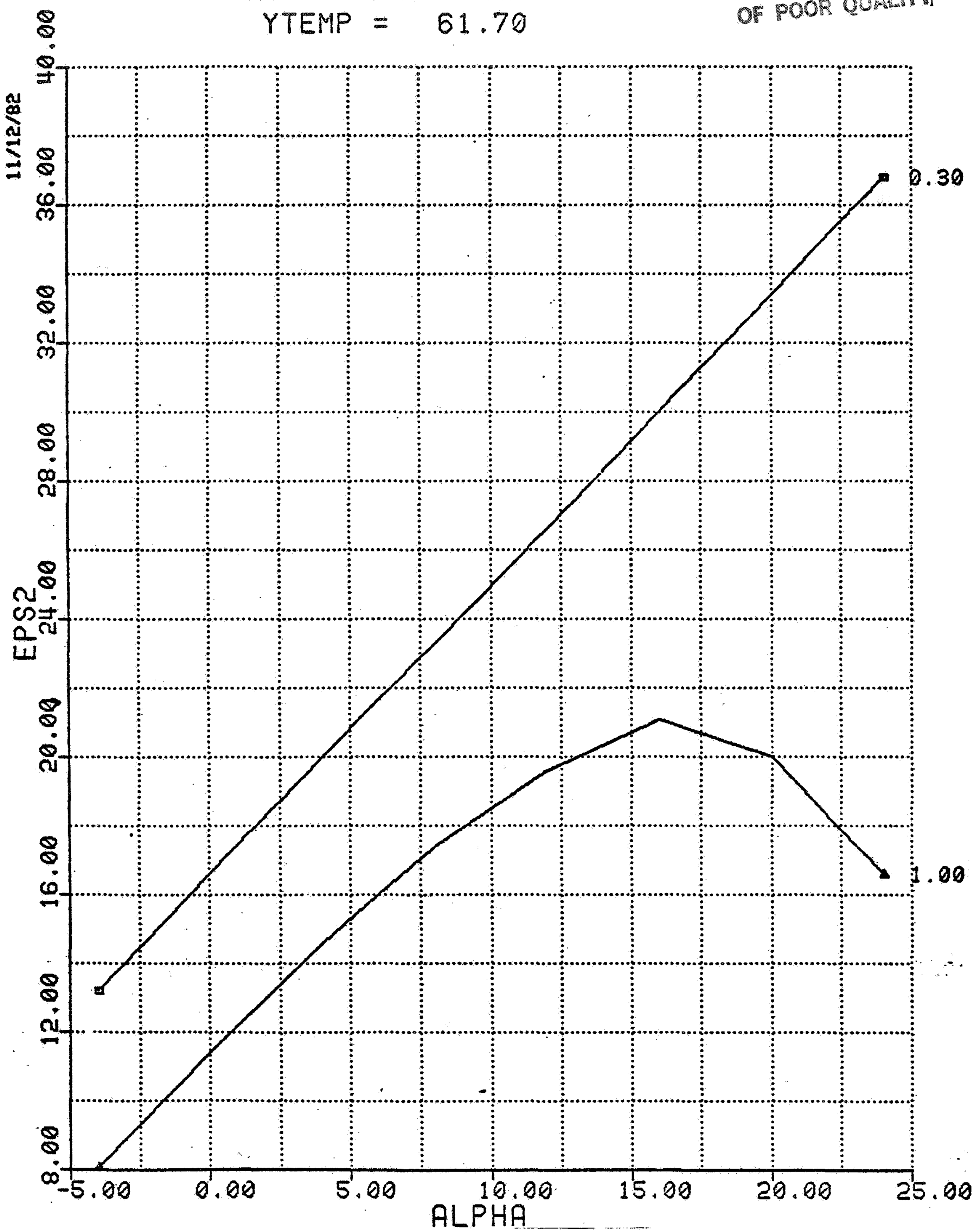


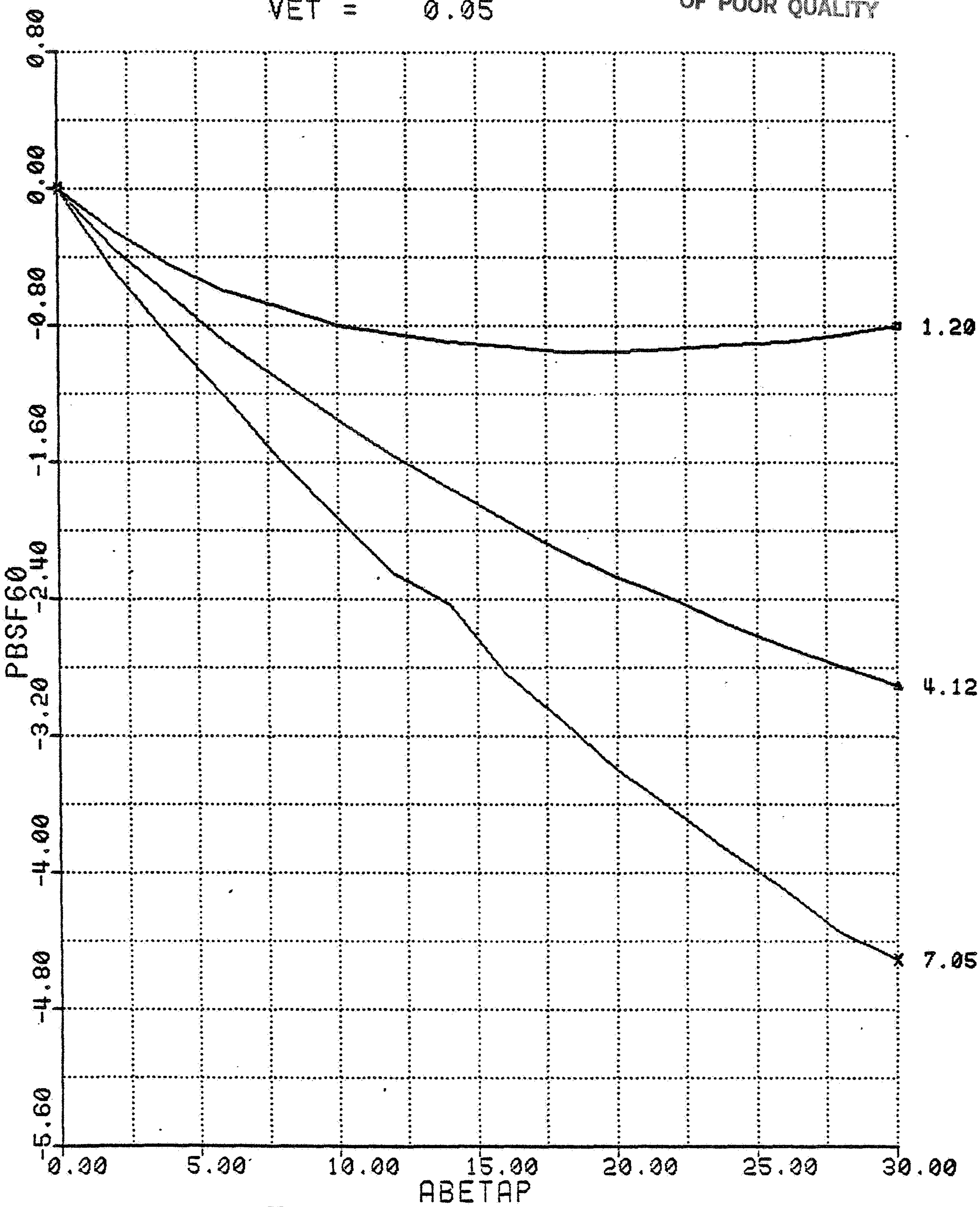

EPS1 VS ALPHA
FOR VARYING VEQ
04/28/81
EPS1
ALPHA
24.00
20.00
16.00
12.00
8.00
4.00
0.00
-4.00
-8.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.00
0.20
0.40
0.60
0.80
1.00

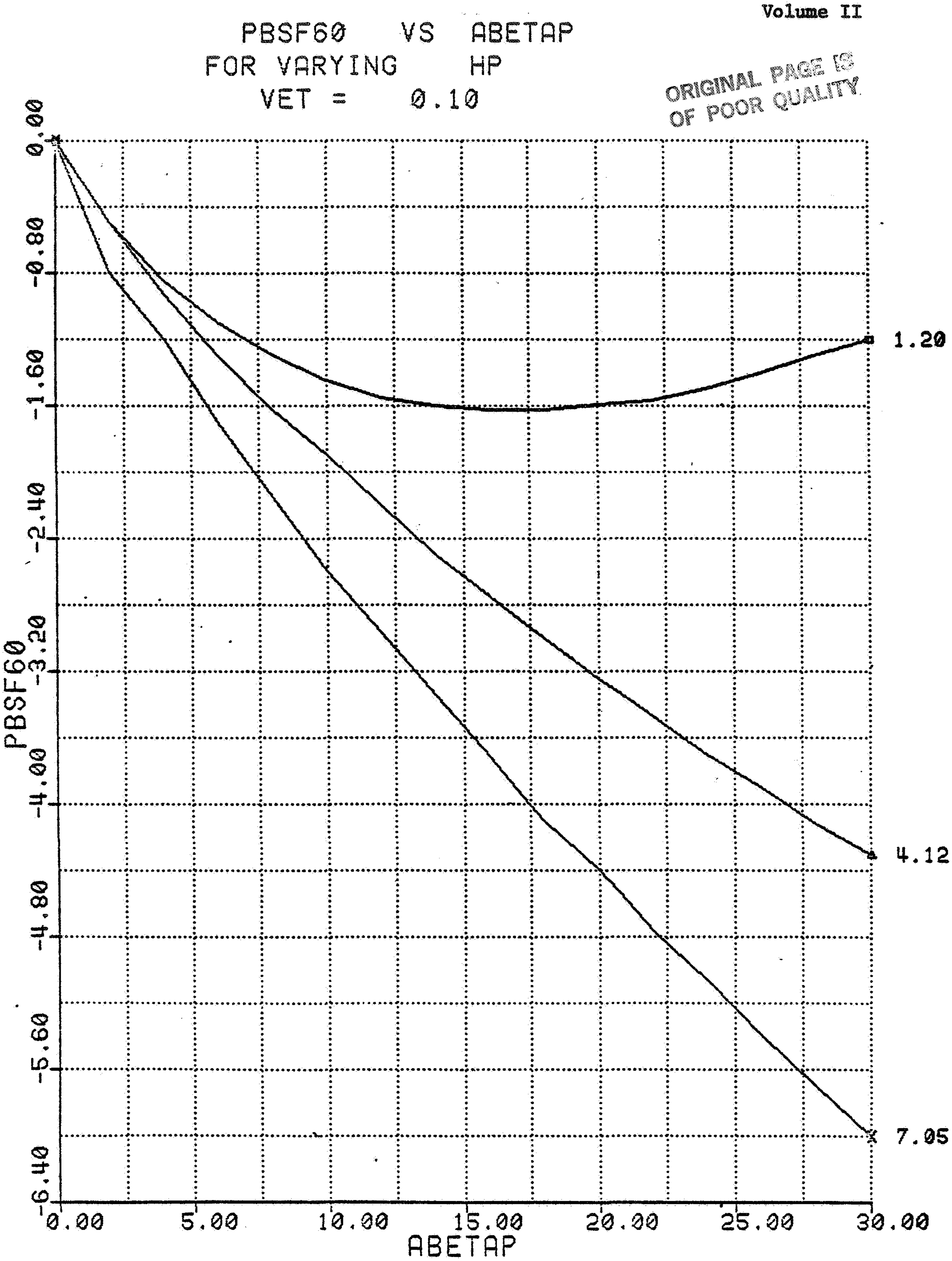

EPS2 VS ALPHA
FOR VARYING VEQ
YTEMP = 25.00
11/12/82
EPS2
ALPHA
36.00
32.00
28.00
24.00
20.00
16.00
12.00
8.00
4.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.30
1.00

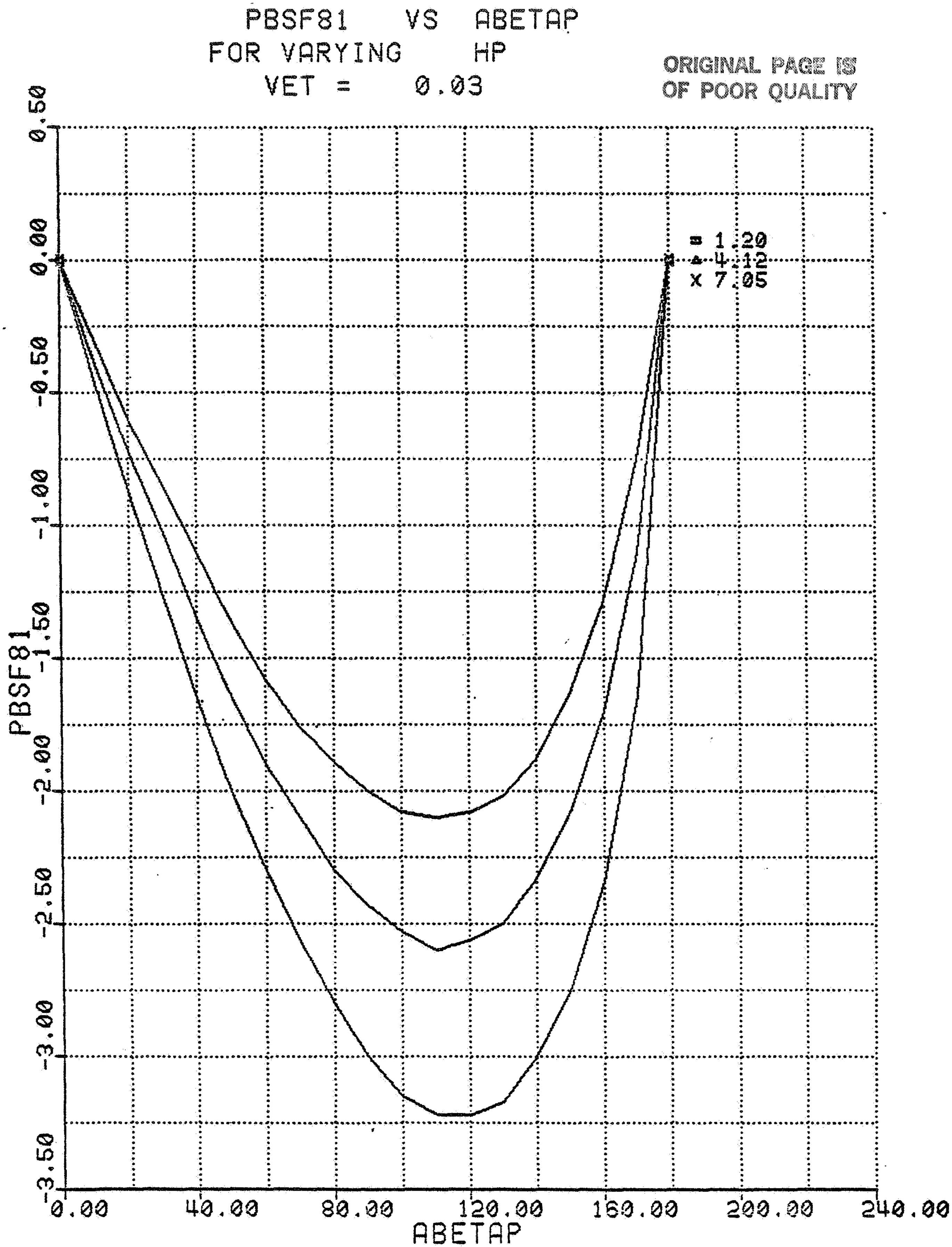
EPS2 VS ALPHA
FOR VARYING VEQ
YTEMP = 61.70



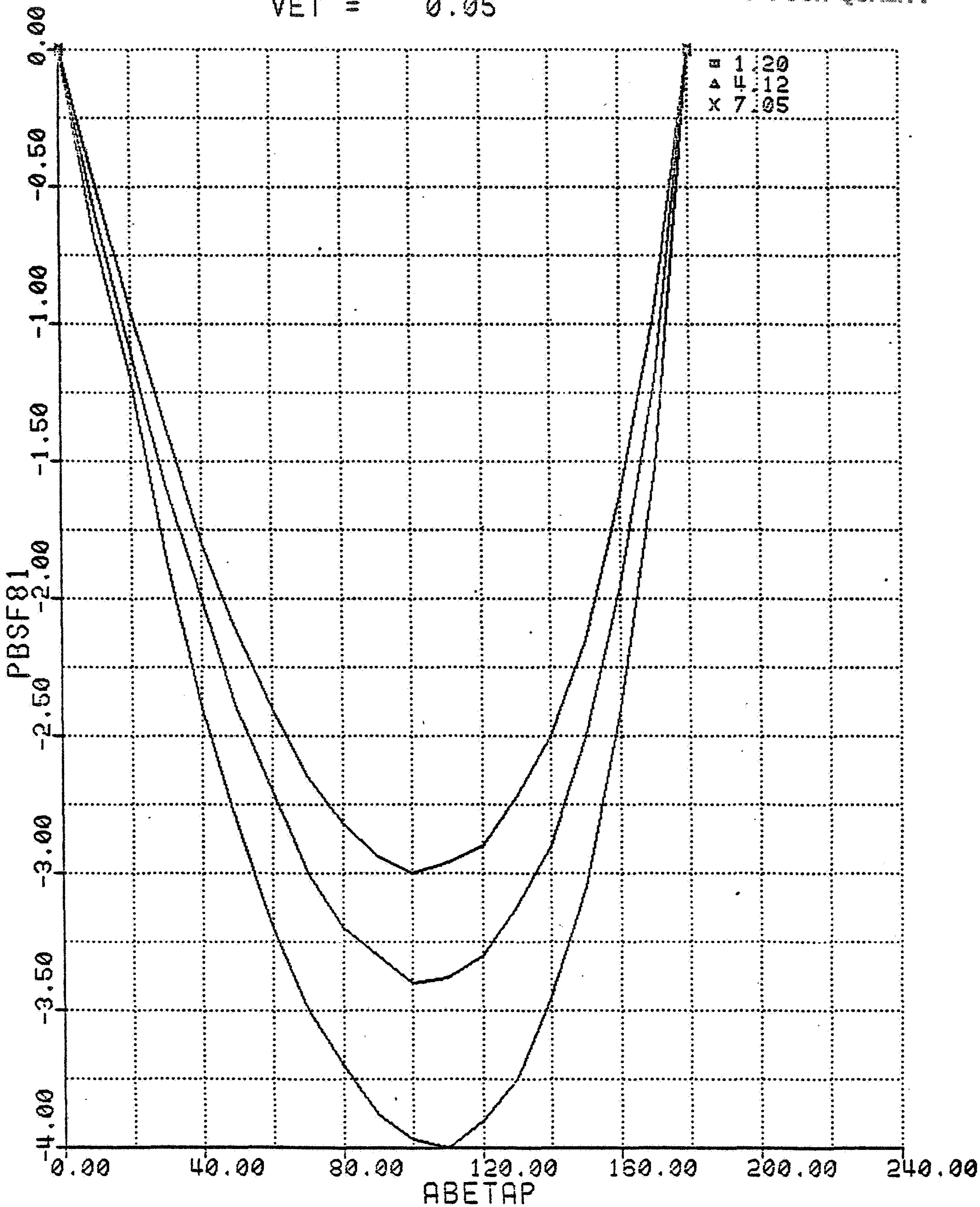
PBSF60 VS ABETAP
FOR VARYING HP
VET = 0.05

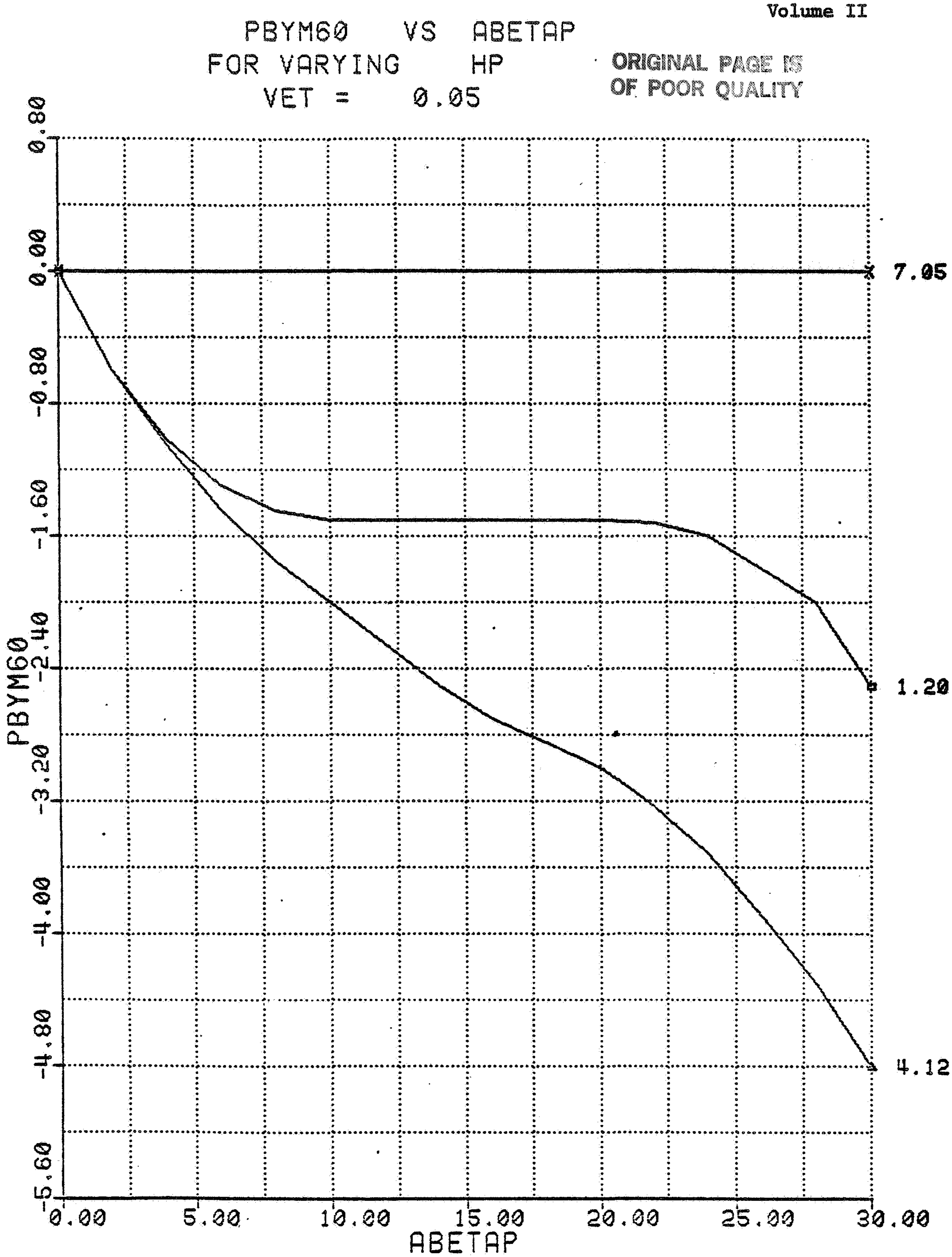


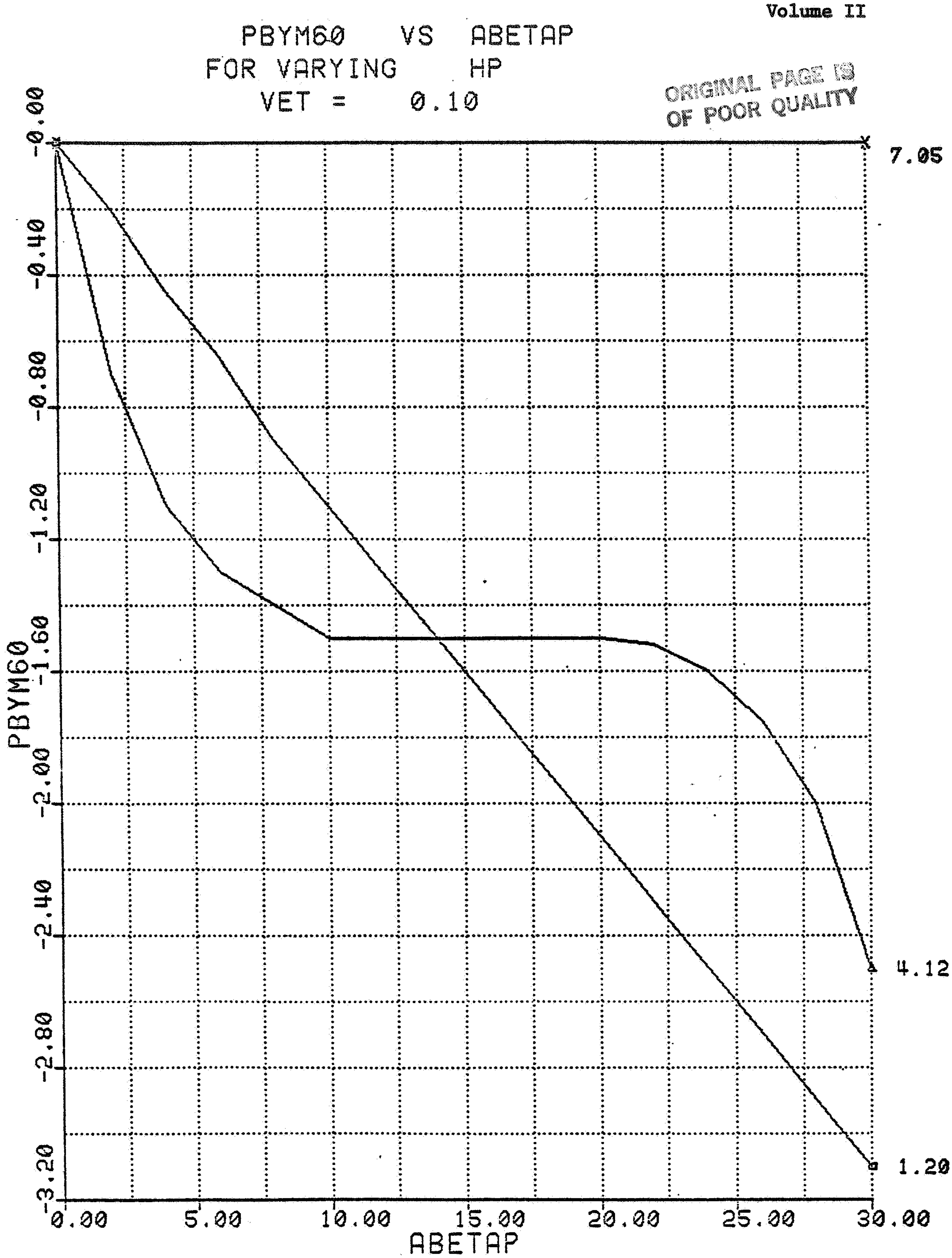

PBSF60 VS ABETAP
FOR VARYING HP
VET = 0.10
0.00
-0.80
-1.60
-2.40
-3.20
-4.00
-4.80
-5.60
-6.40
PBSF60
0.00
5.00
10.00
15.00
20.00
25.00
30.00
ABETAP
1.20
4.12
7.05


PBSF81 VS ABETAP
FOR VARYING HP
VET = 0.03
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
PBSF81
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP
1.20
4.12
x 7.05

PBSF81 VS ABETAP
FOR VARYING HP
VET = 0.05




PBYM60 VS ABETAP
FOR VARYING HP
VET = 0.05
0.80
0.00
-0.80
-1.60
-2.40
-3.20
-4.00
-4.80
-5.60
PBYM60
7.05
1.20
4.12
0.00
5.00
10.00
15.00
20.00
25.00
30.00
ABETAP


PBYM60 VS ABETAP
FOR VARYING HP
VET = 0.10
ORIGINAL PAGE IS
OF POOR QUALITY
PBYM60
-0.00
-0.40
-0.80
-1.20
-1.60
-2.00
-2.40
-2.80
-3.20
0.00
5.00
10.00
15.00
20.00
25.00
30.00
ABETAP
7.05
4.12
1.20

ORIGINAL PAGE IS
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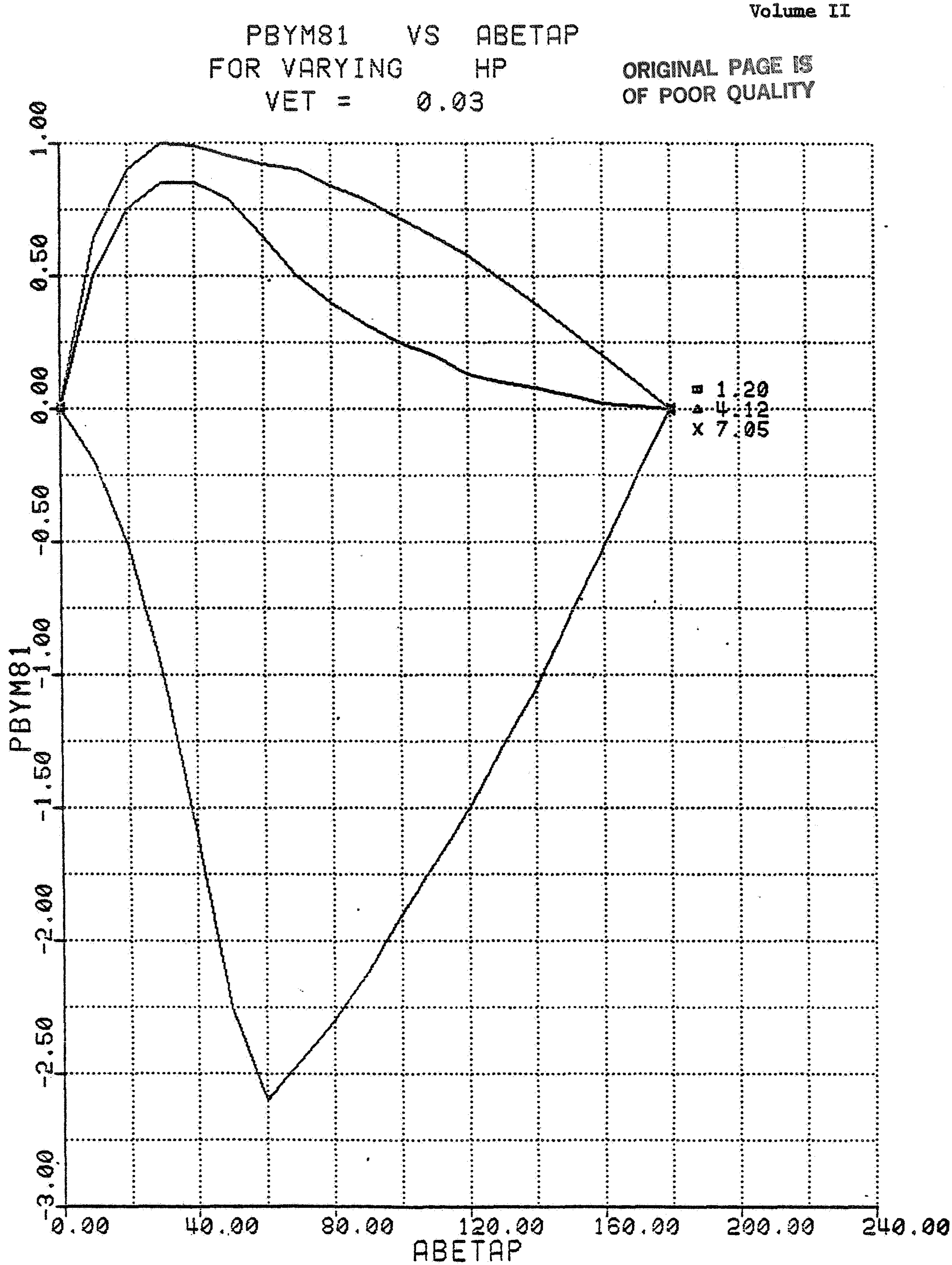

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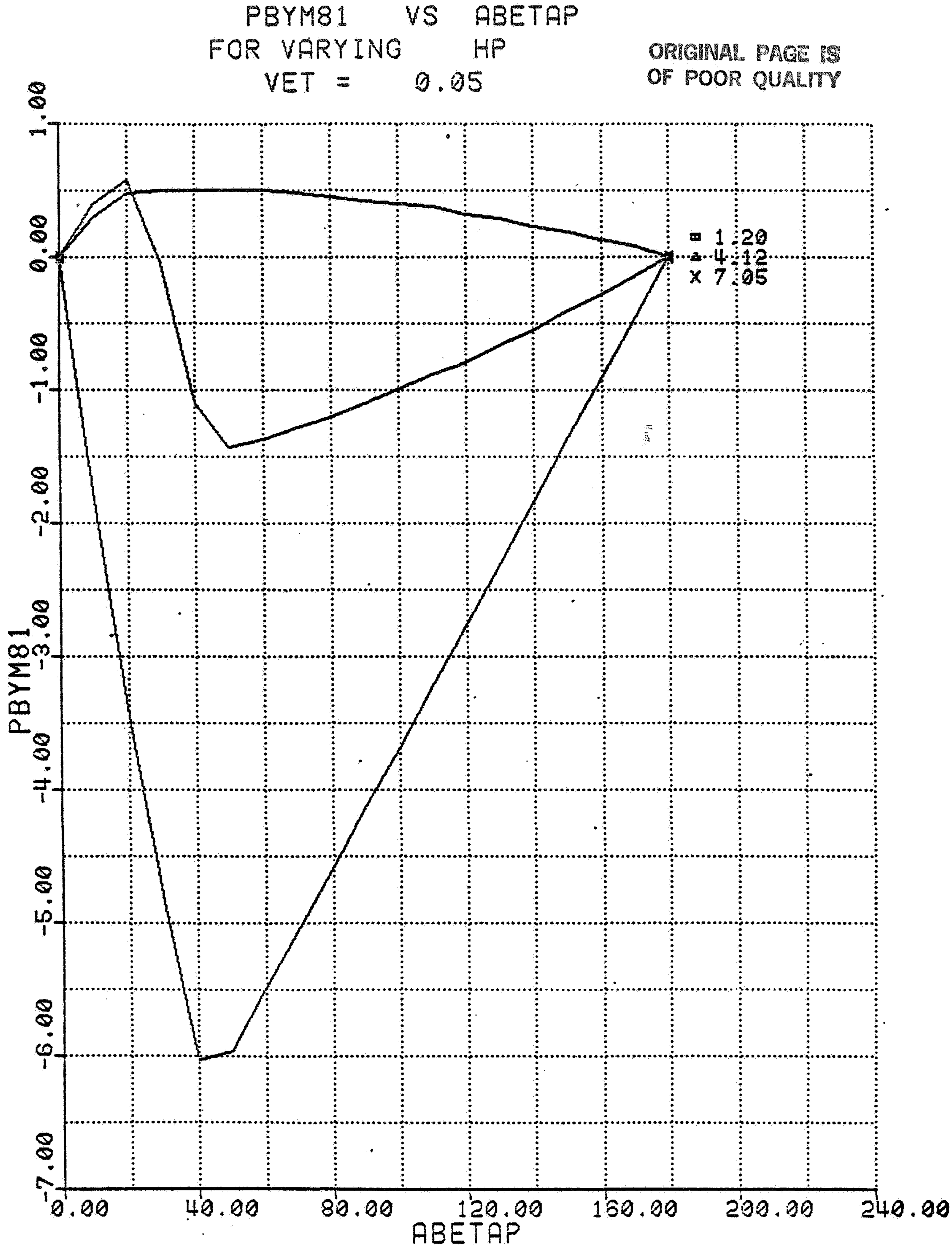
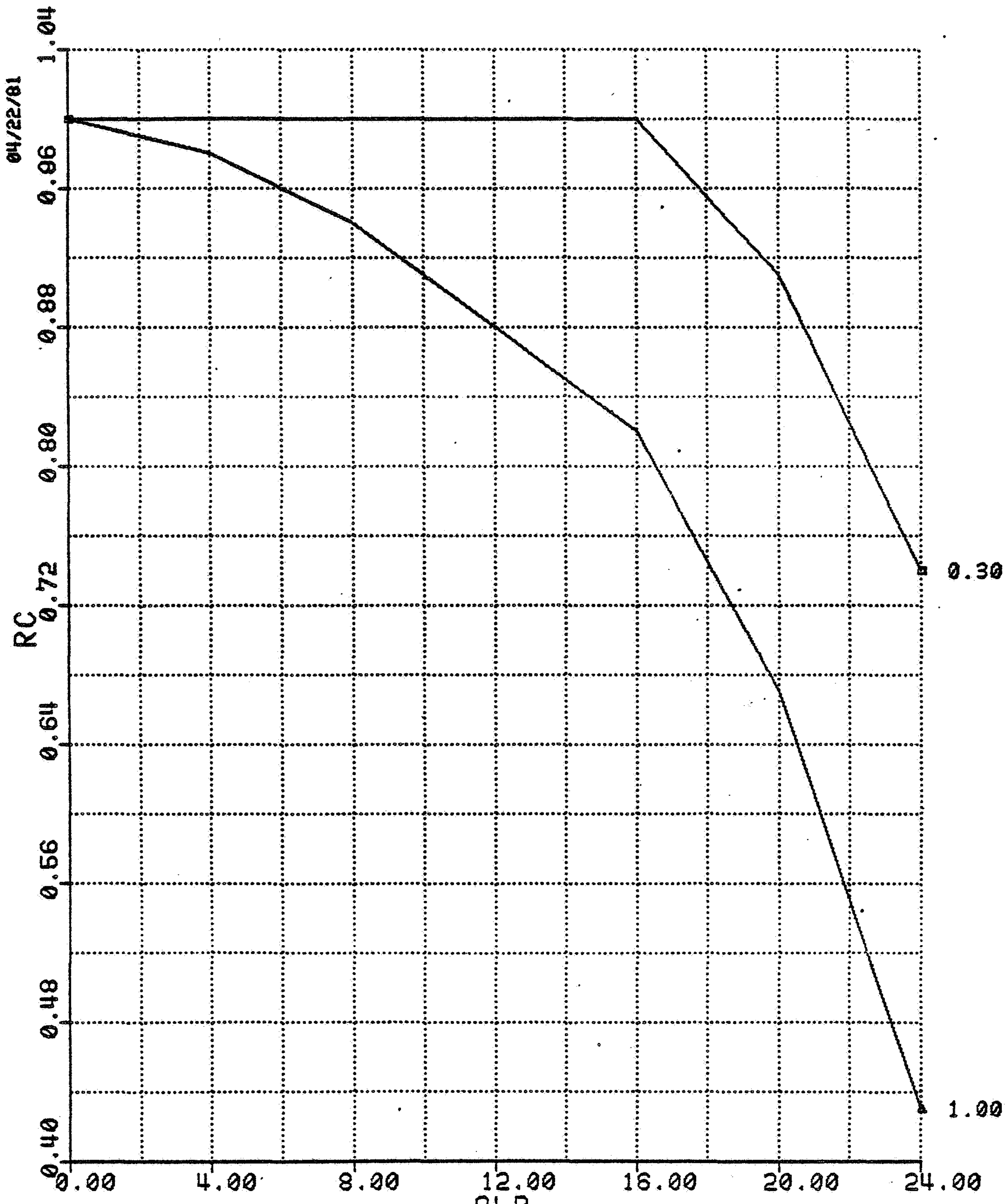
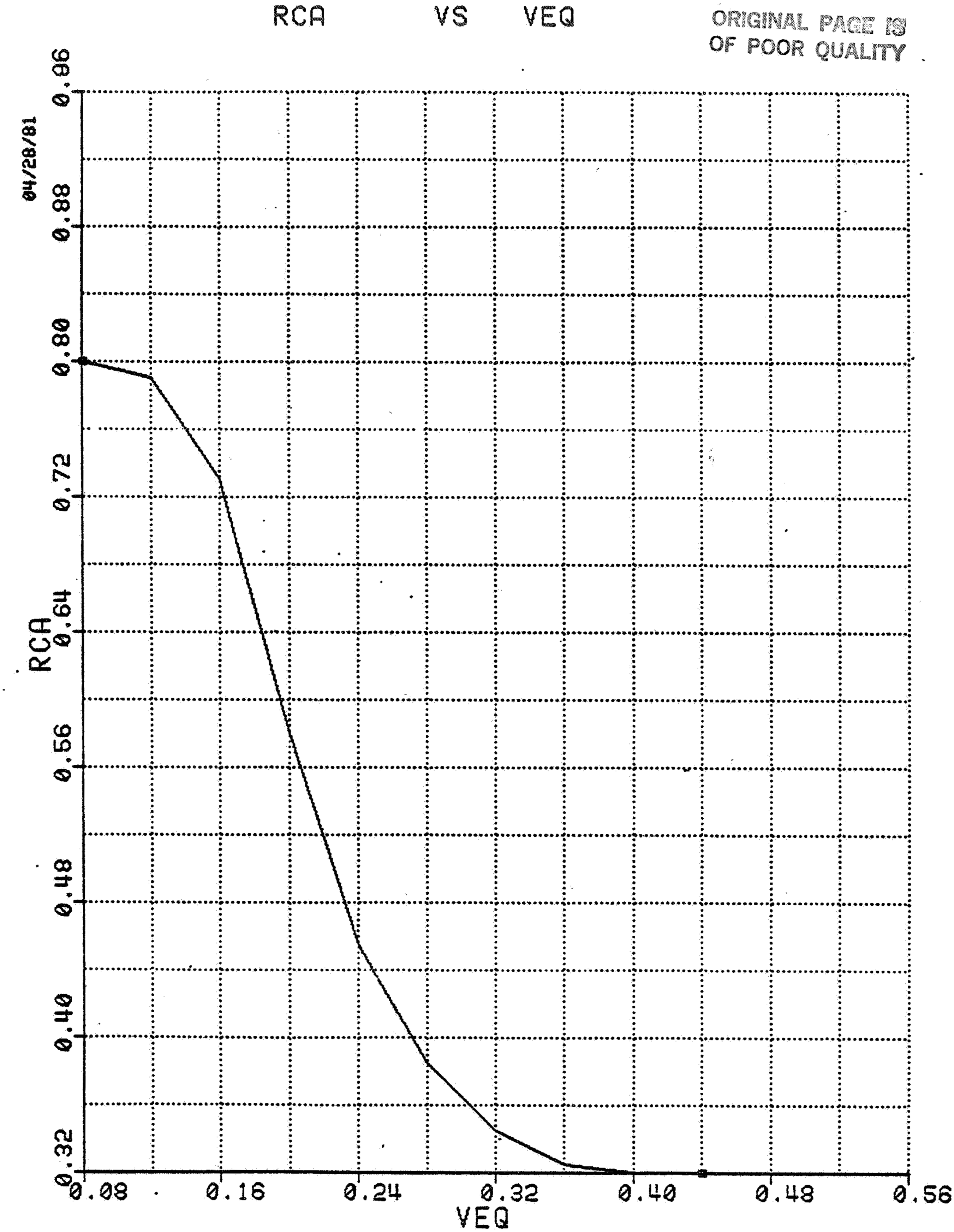


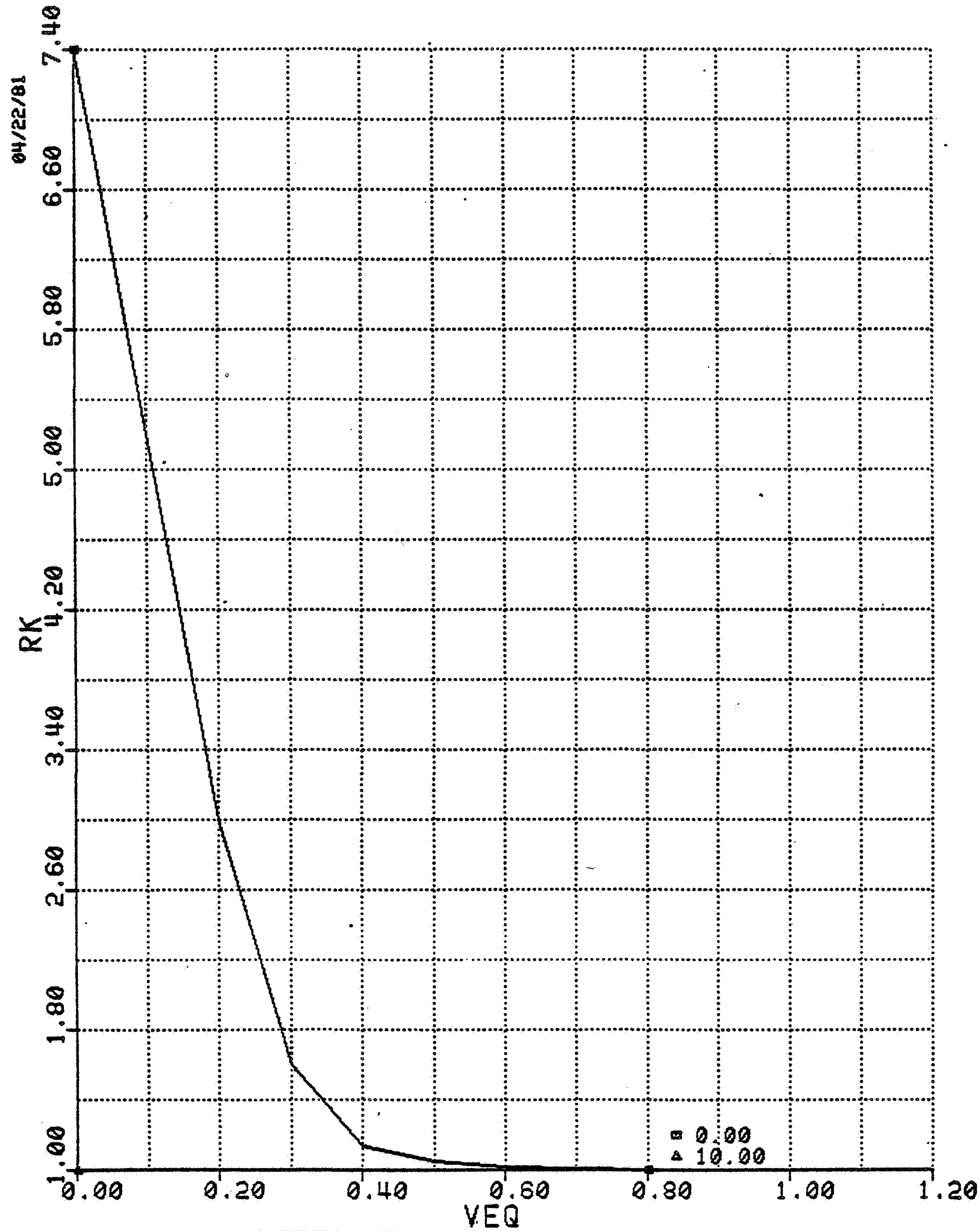
RC VS ALP
FOR VARYING VEQ



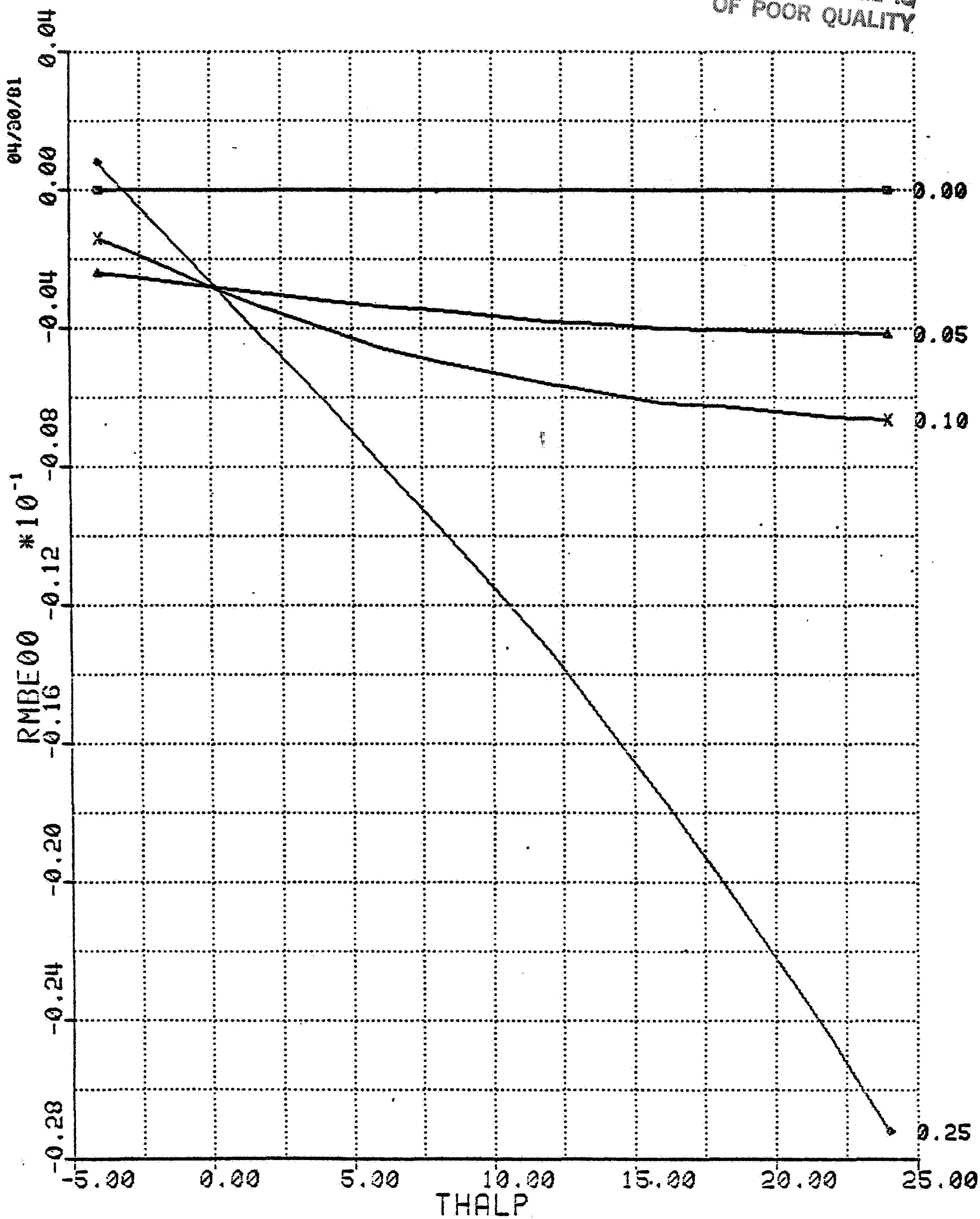

RCA VS VEQ
04/28/81
0.96
0.88
0.80
0.72
0.64
RCA
0.56
0.48
0.40
0.32
0.08
0.16
0.24
0.32
0.40
0.48
0.56
VEQ

ORIGINAL PAGE IS
OF POOR QUALITY

RK VS VEQ
FOR VARYING THETAJ



RMBE00 VS THALP
FOR VARYING VEQ



RMBE60 VS THALP
FOR VARYING VEQ

ORIGINAL PAGE IS
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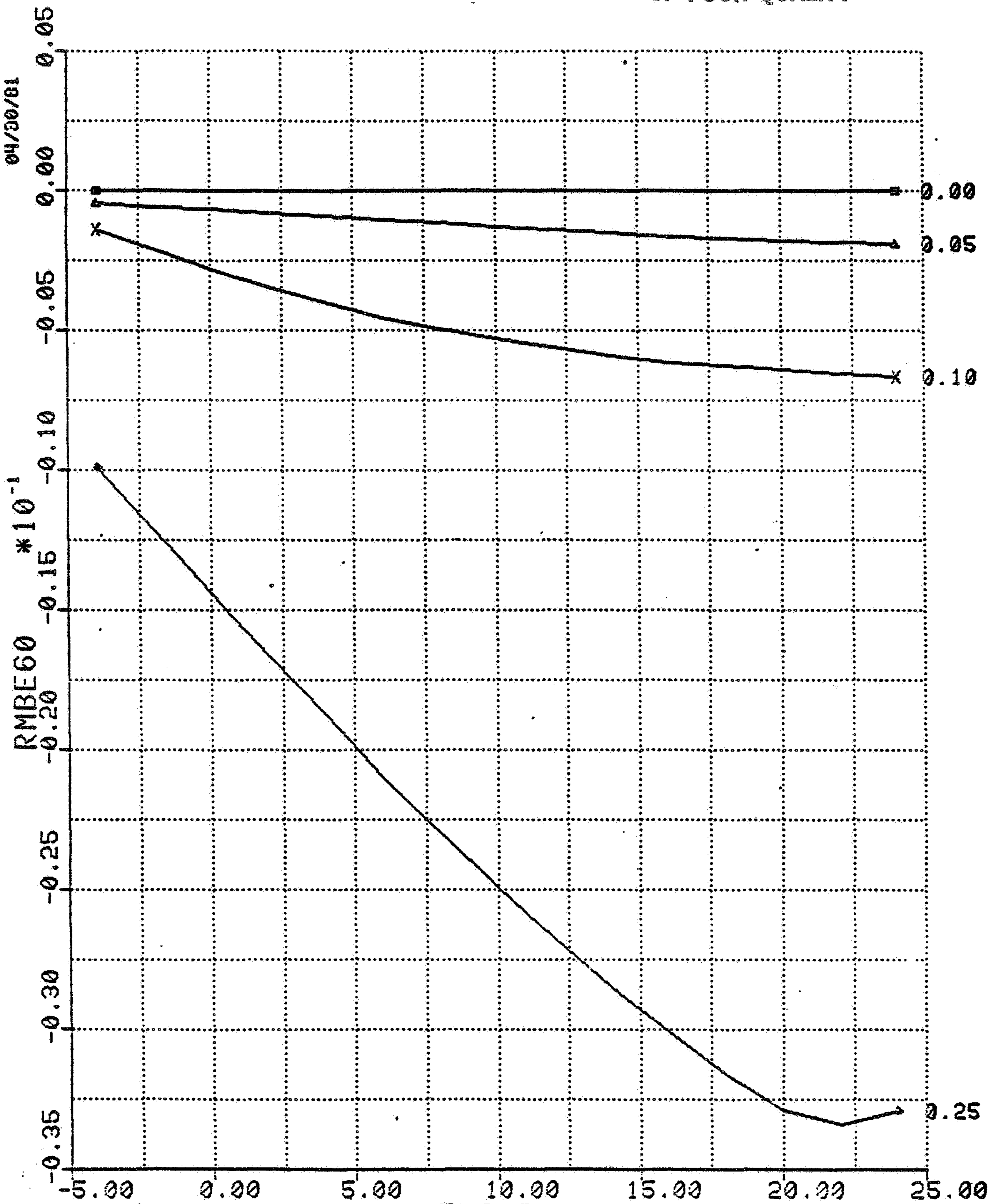
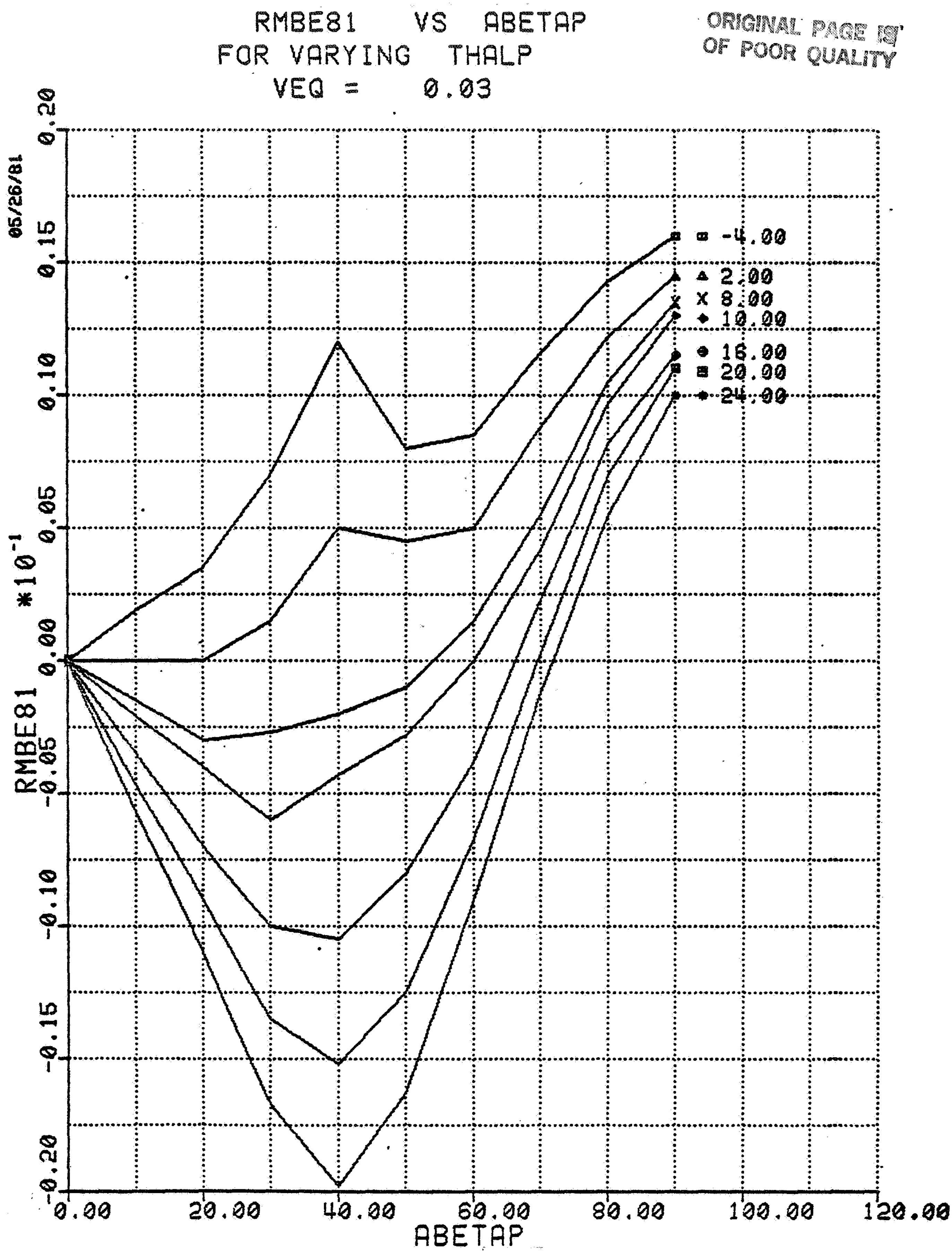
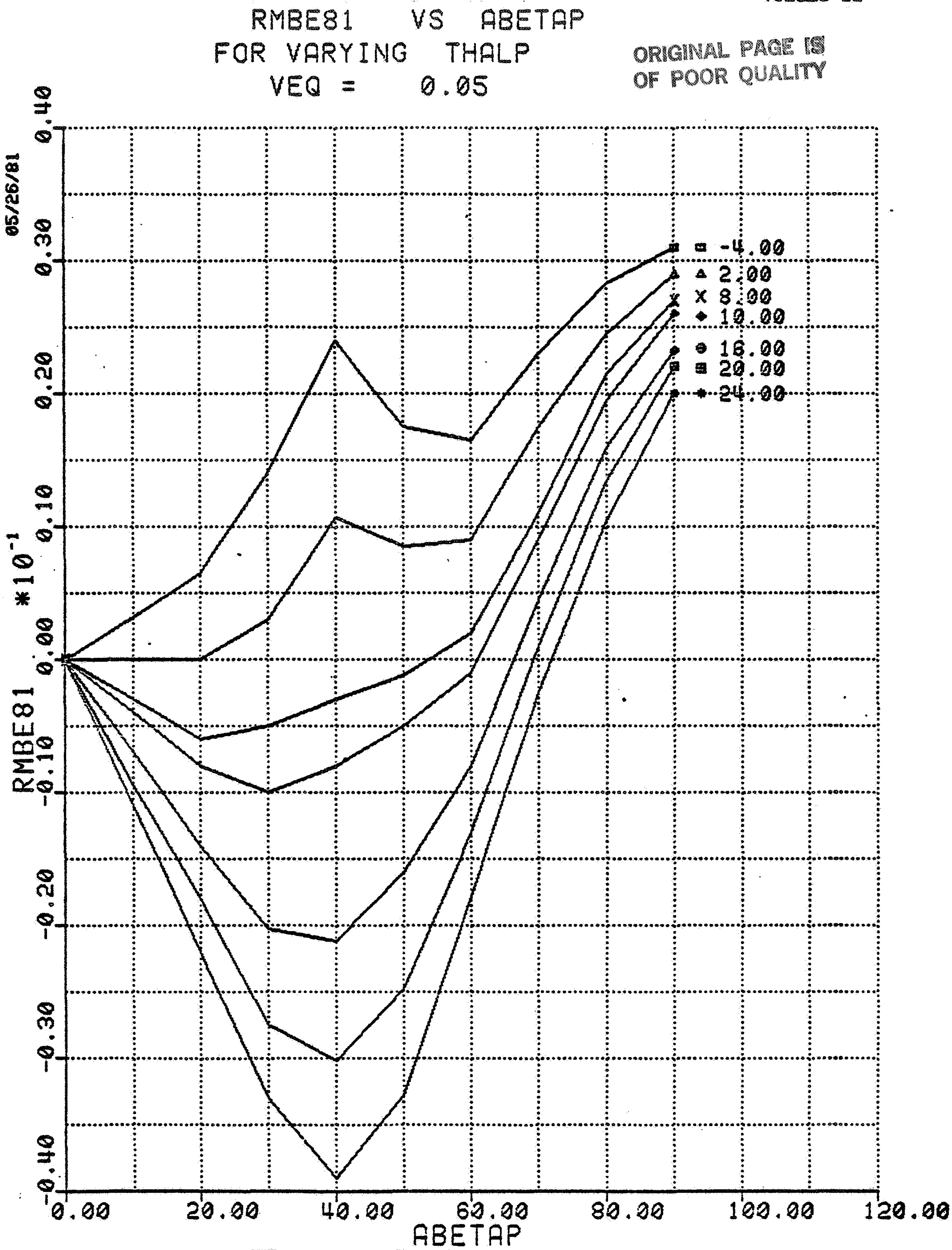



RMBE81 VS ABETAP
FOR VARYING THALP
VEQ = 0.03
05/26/81
RMBE81 *10⁻¹
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
0.00
20.00
40.00
60.00
80.00
100.00
120.00
ABETAP
-4.00
2.00
8.00
10.00
16.00
20.00
24.00


RMBE81 VS ABETAP
FOR VARYING THALP
VEQ = 0.05
05/26/81
RMBE81 *10⁻¹
ABETAP
-4.00
2.00
8.00
10.00
16.00
20.00
24.00
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
0.00
20.00
40.00
60.00
80.00
100.00
120.00

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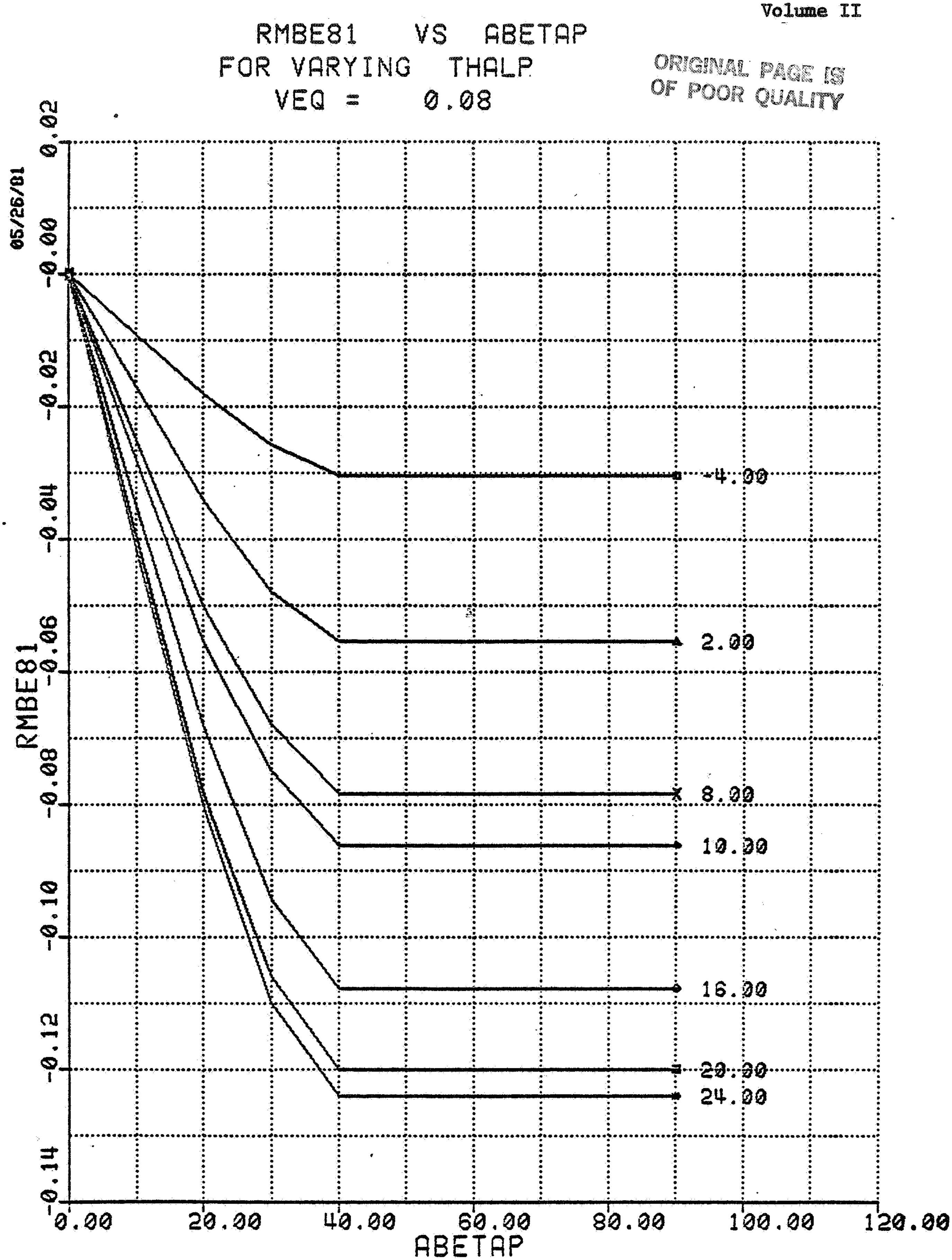
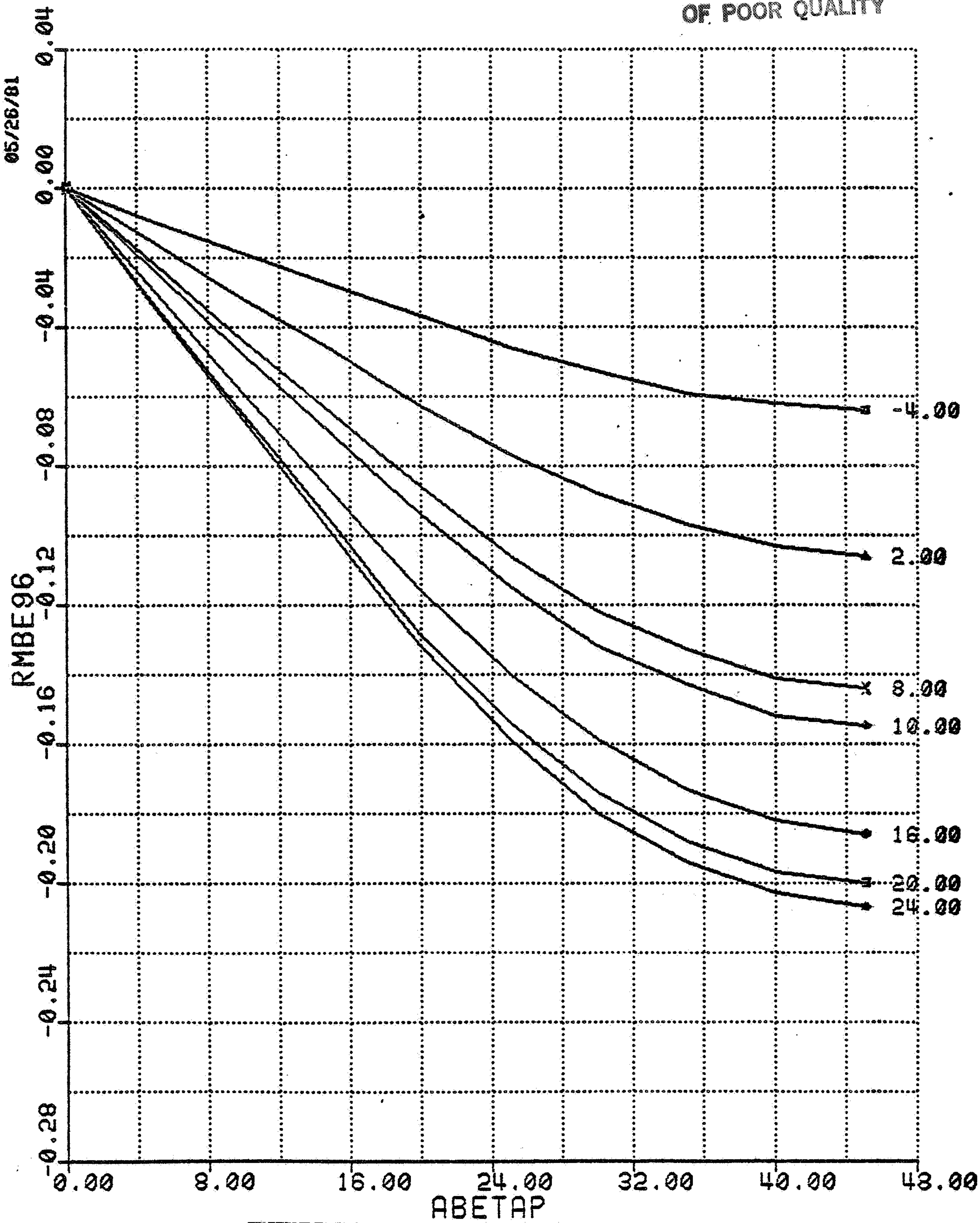


RMBE96 VS ABETAP
FOR VARYING THALP



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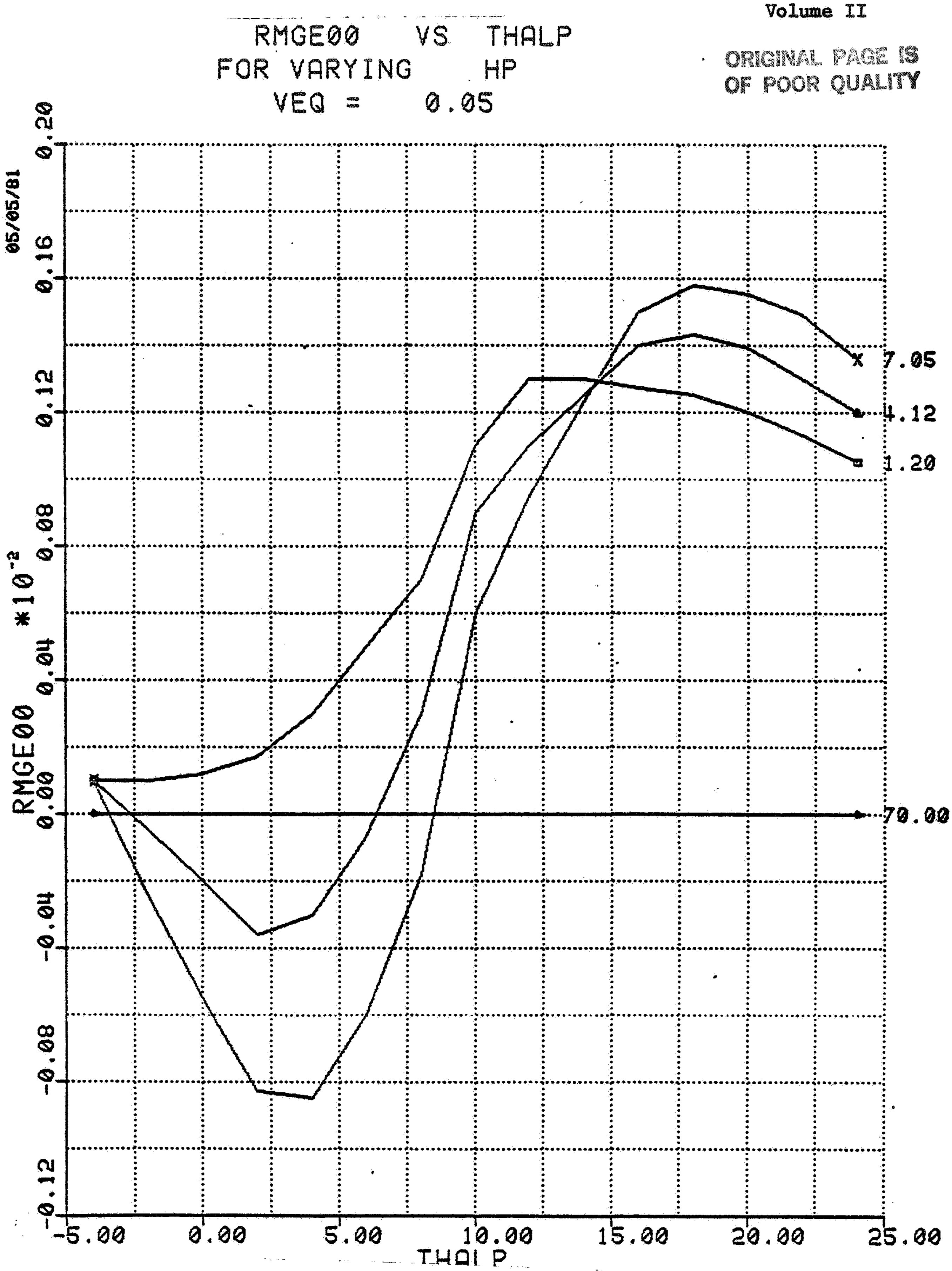
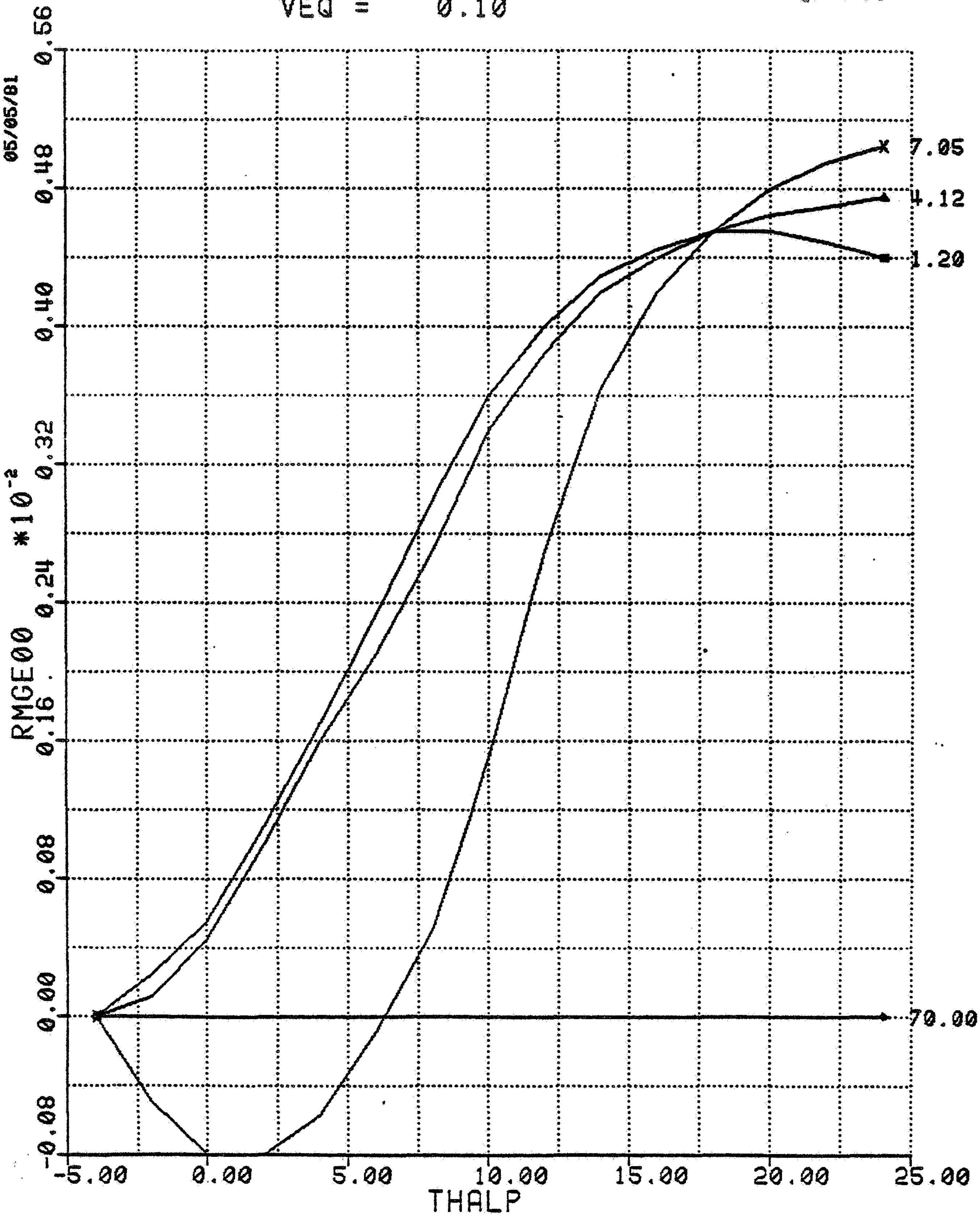
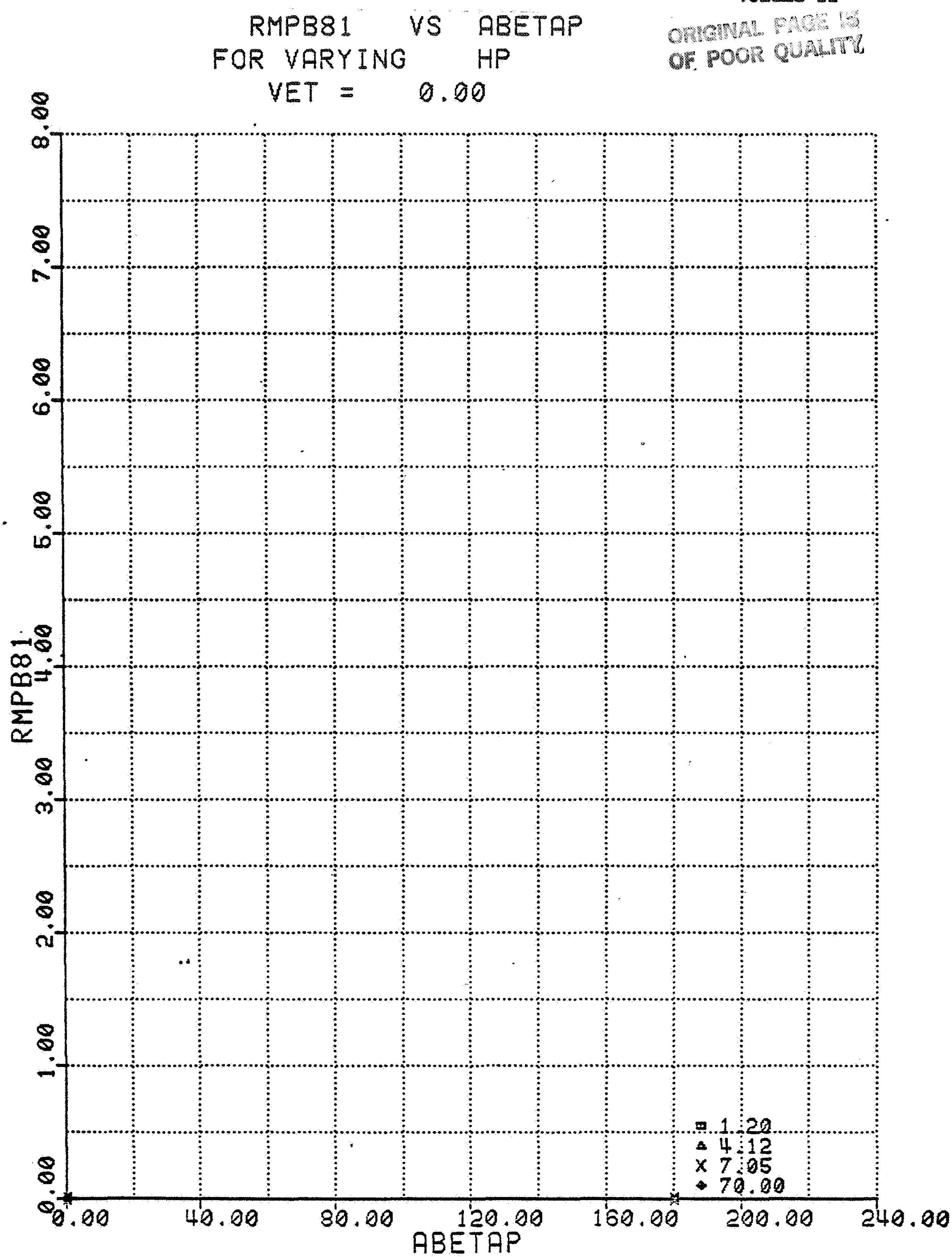
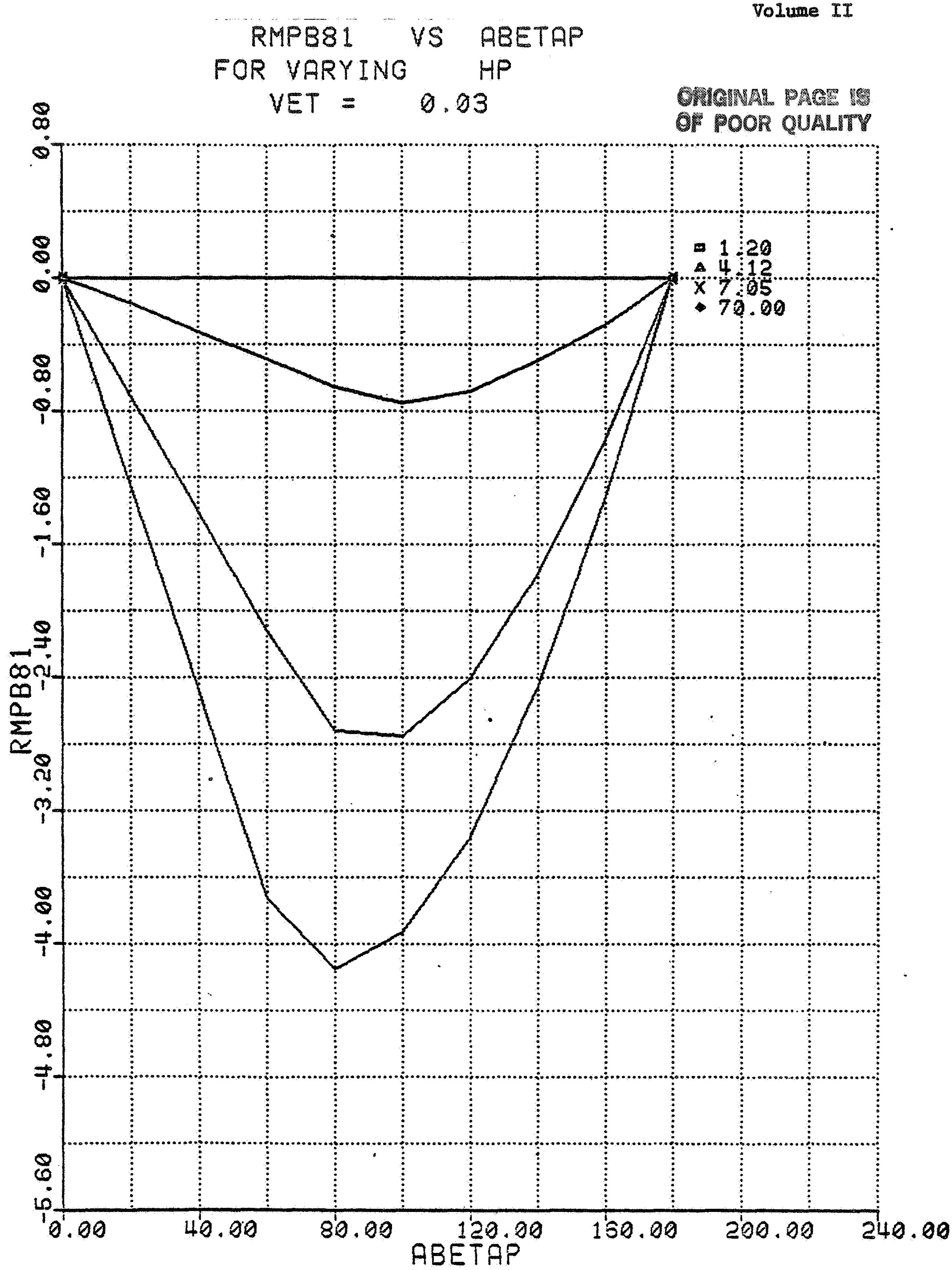
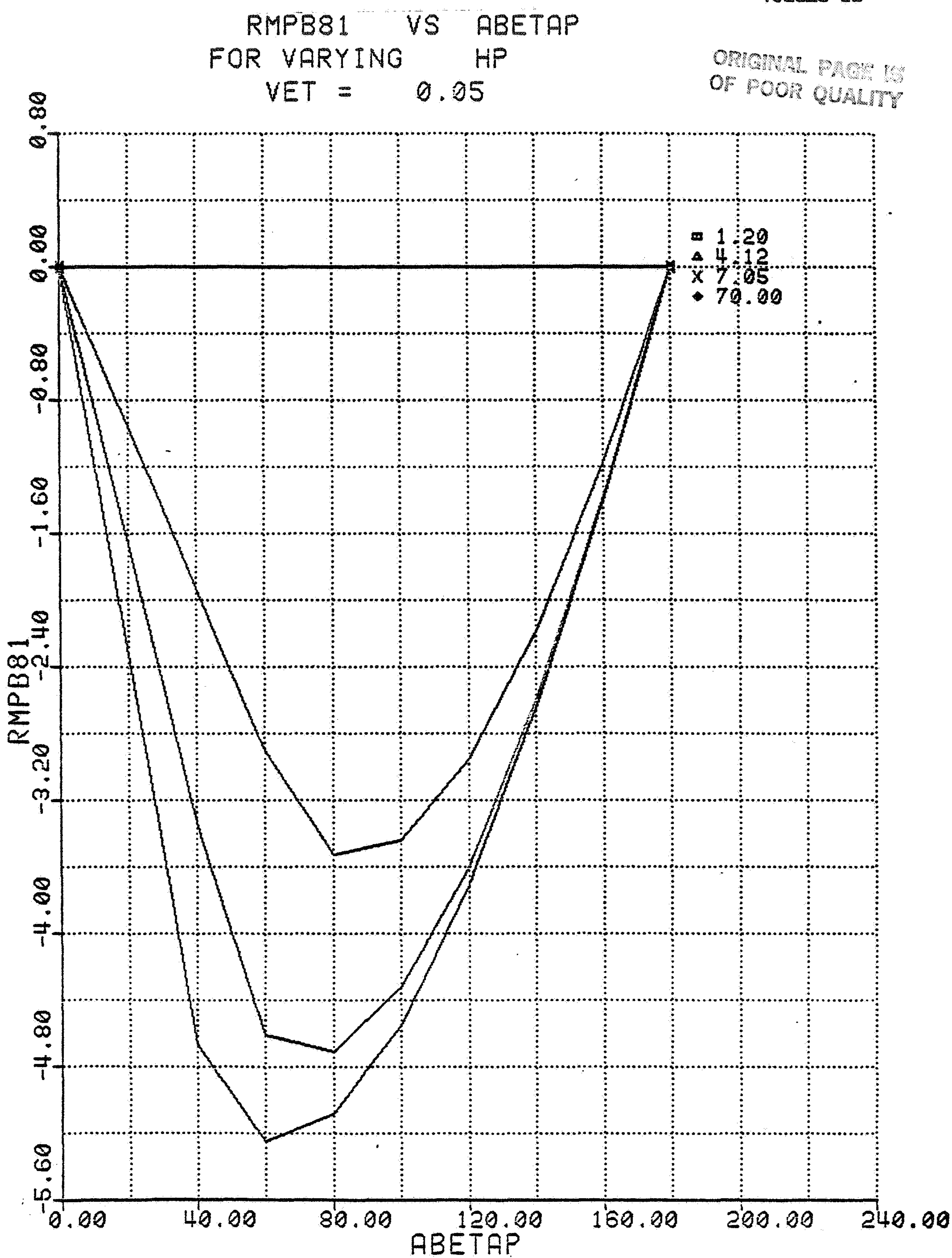


RMGE00 VS THALP
FOR VARYING HP
VEQ = 0.10

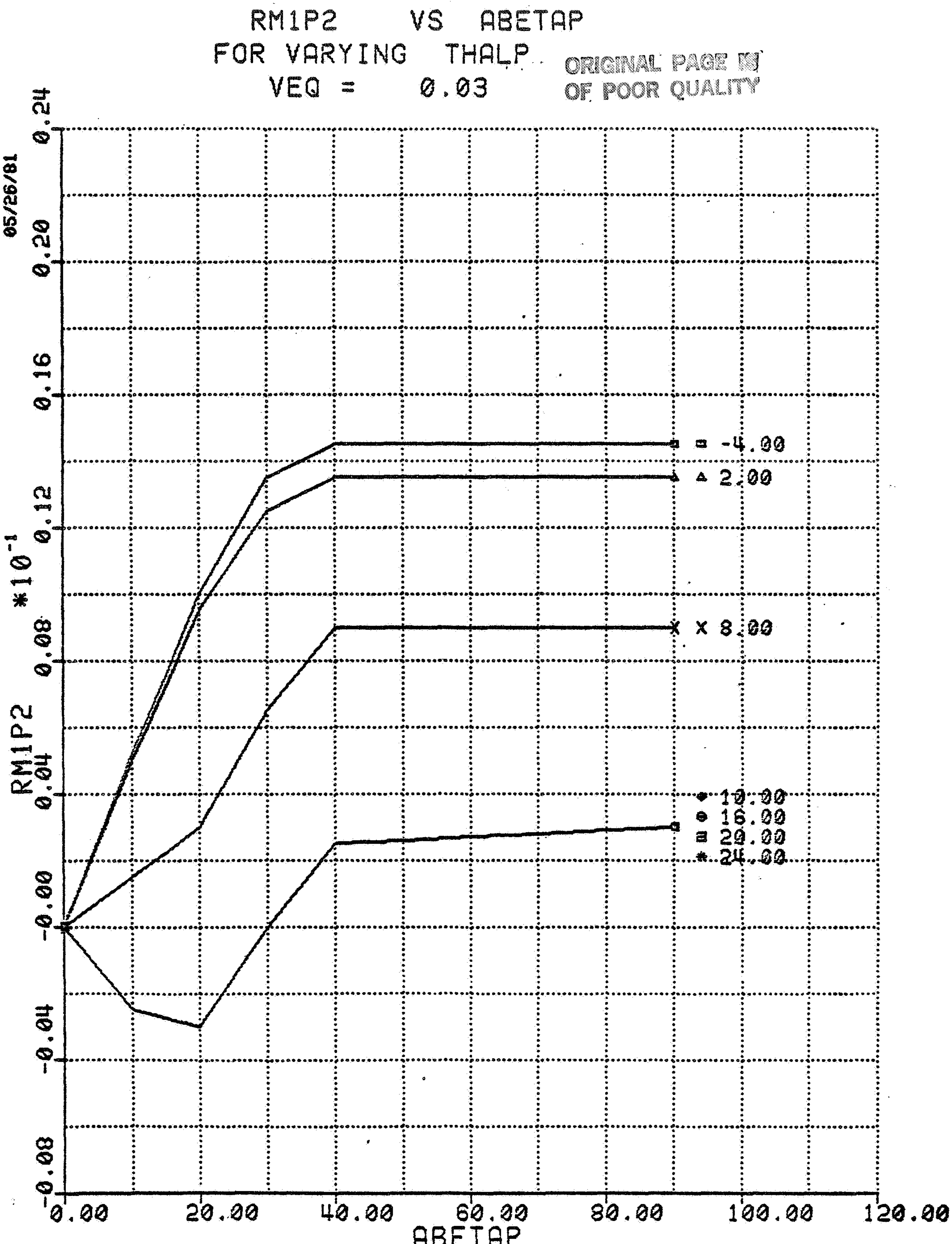


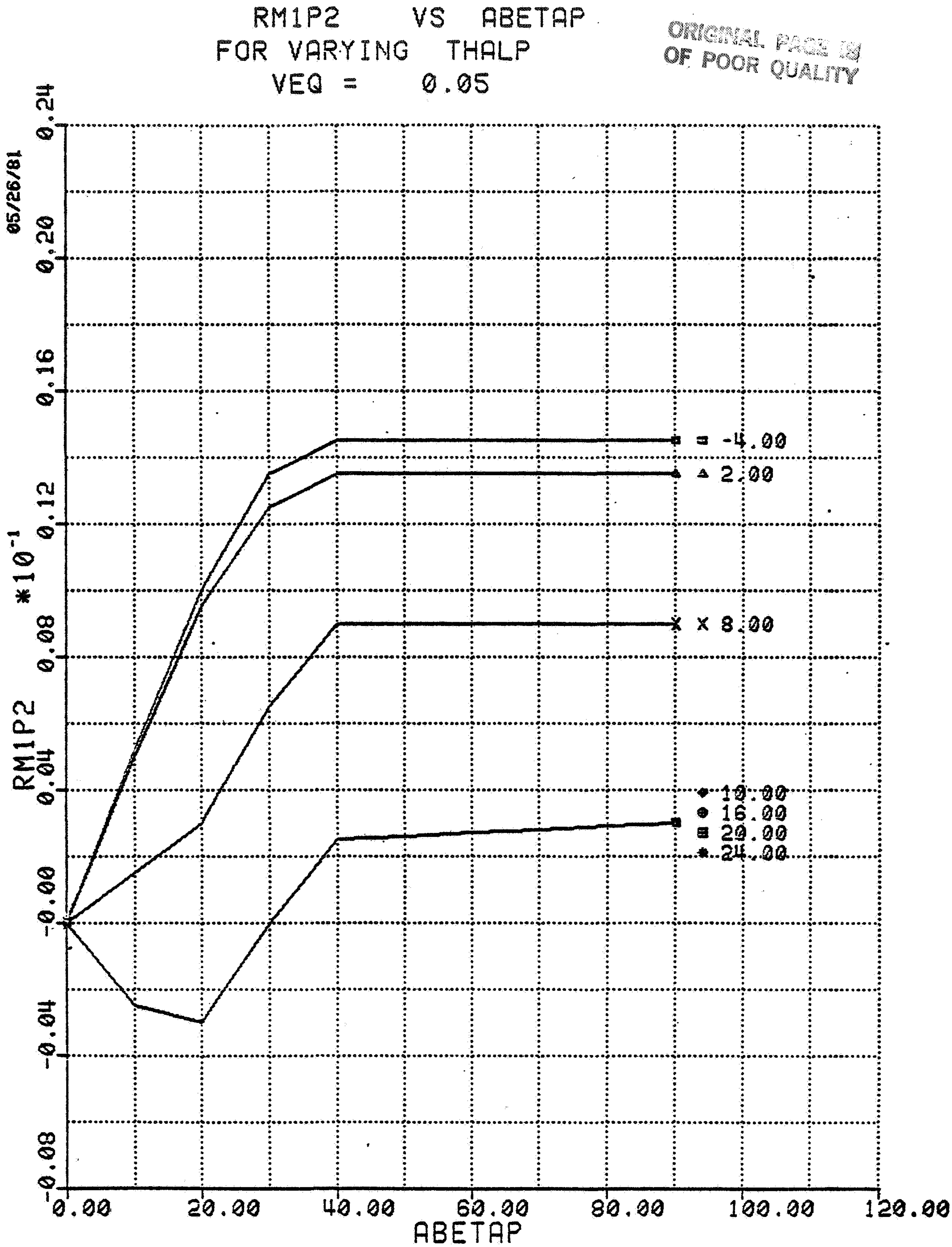

RMPB81 VS ABETAP
FOR VARYING HP
VET = 0.00
RMPB81
ABETAP
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
40.00
80.00
120.00
160.00
200.00
240.00
1.20
4.12
7.05
70.00


RMPB81 VS ABETAP
FOR VARYING HP
VET = 0.03
1.20
4.12
7.05
70.00
0.80
0.00
-0.80
-1.60
-2.40
-3.20
-4.00
-4.80
-5.60
RMPB81
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP


RMPB81 VS ABETAP
FOR VARYING HP
VET = 0.05
■ 1.20
▲ 4.12
X 7.05
◆ 70.00
0.80
0.00
-0.80
-1.60
-2.40
-3.20
-4.00
-4.80
-5.60
RMPB81
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP

C-6


RM1P2 VS ABETAP
FOR VARYING THALP
VEQ = 0.03
05/26/81
RM1P2
*10⁻¹
0.24
0.20
0.16
0.12
0.08
0.04
-0.00
-0.04
-0.08
0.00
20.00
40.00
60.00
80.00
100.00
120.00
ABETAP
-4.00
2.00
8.00
10.00
16.00
20.00
24.00


RM1P2 VS ABETAP
FOR VARYING THALP
VEQ = 0.05
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05/26/81
RM1P2
*10^{-1}
0.24
0.20
0.16
0.12
0.08
0.04
-0.00
-0.04
-0.08
-4.00
2.00
8.00
10.00
16.00
20.00
24.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
ABETAP

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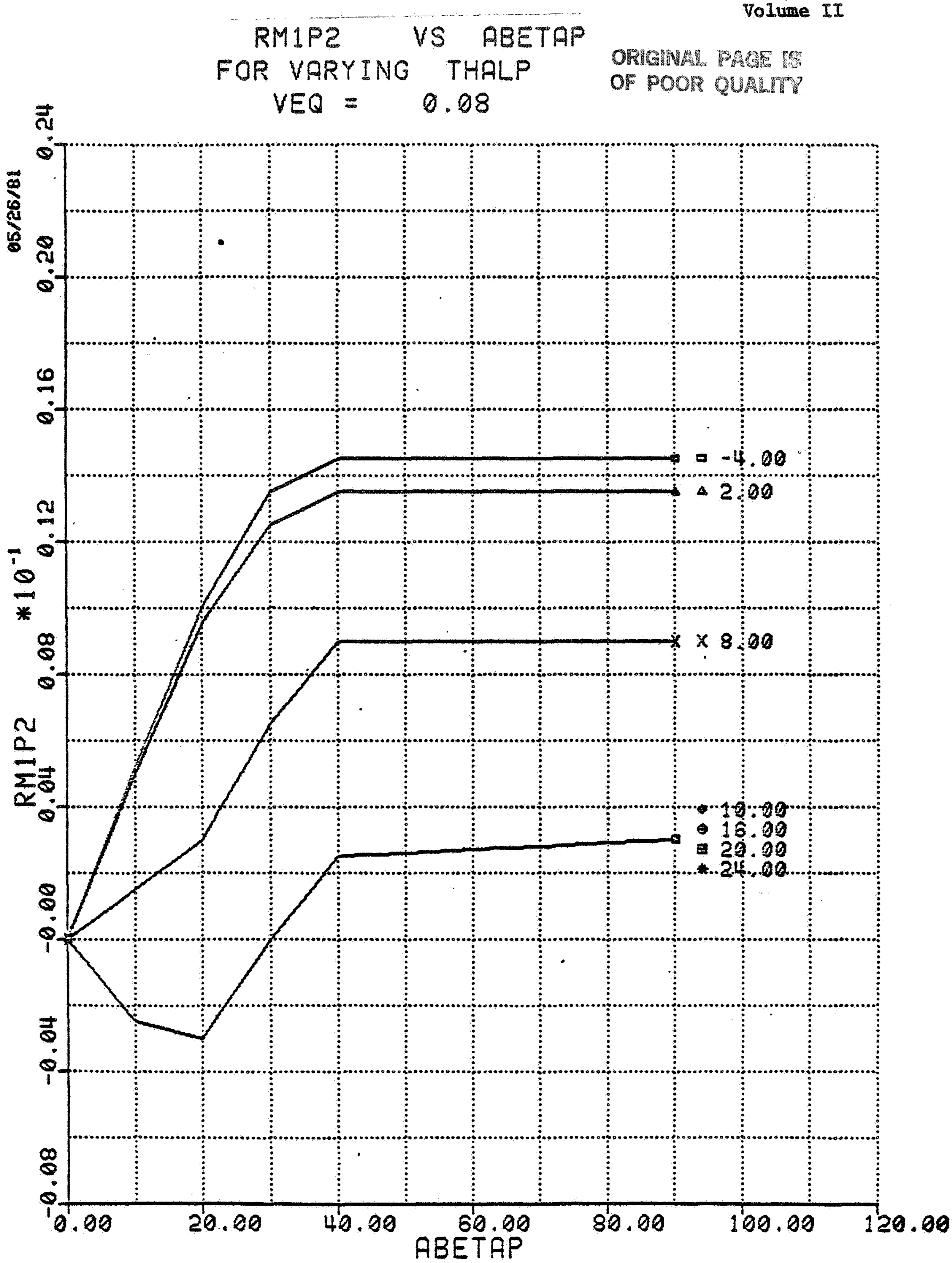
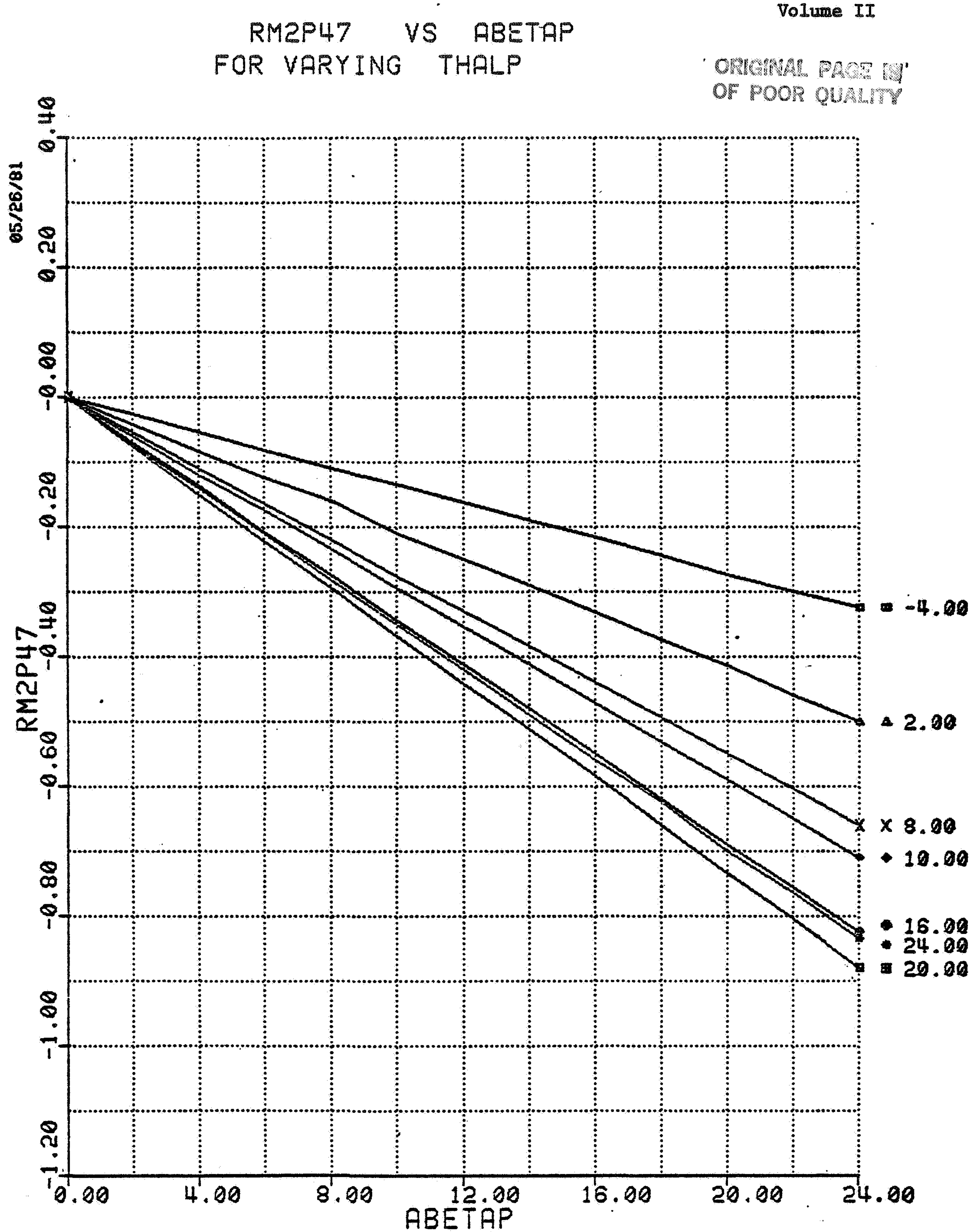
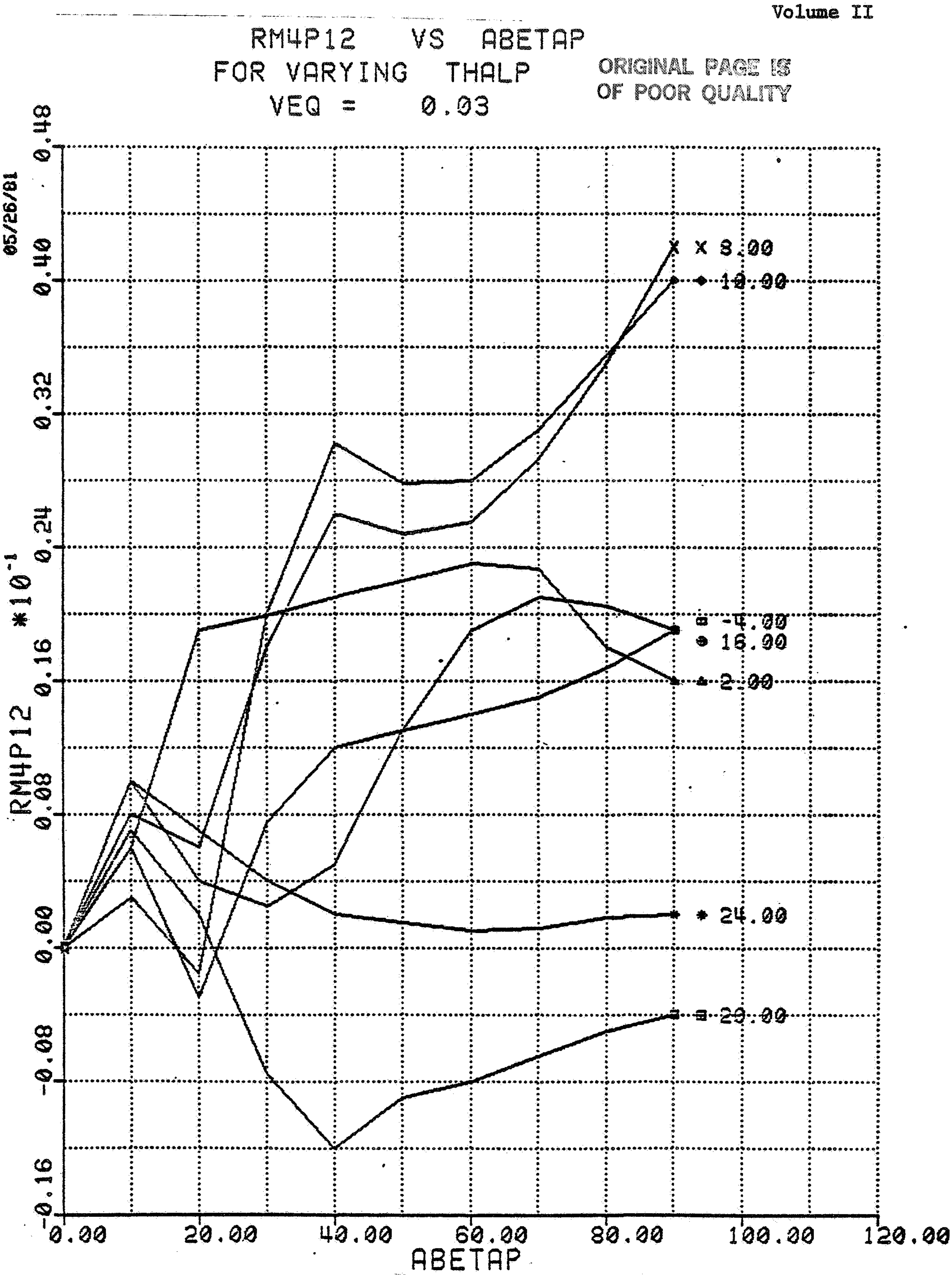



RM2P47 VS ABETAP
FOR VARYING THALP
05/26/81
RM2P47
0.40
0.20
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
0.00
4.00
8.00
12.00
16.00
20.00
24.00
ABETAP
-4.00
2.00
8.00
10.00
16.00
24.00
20.00



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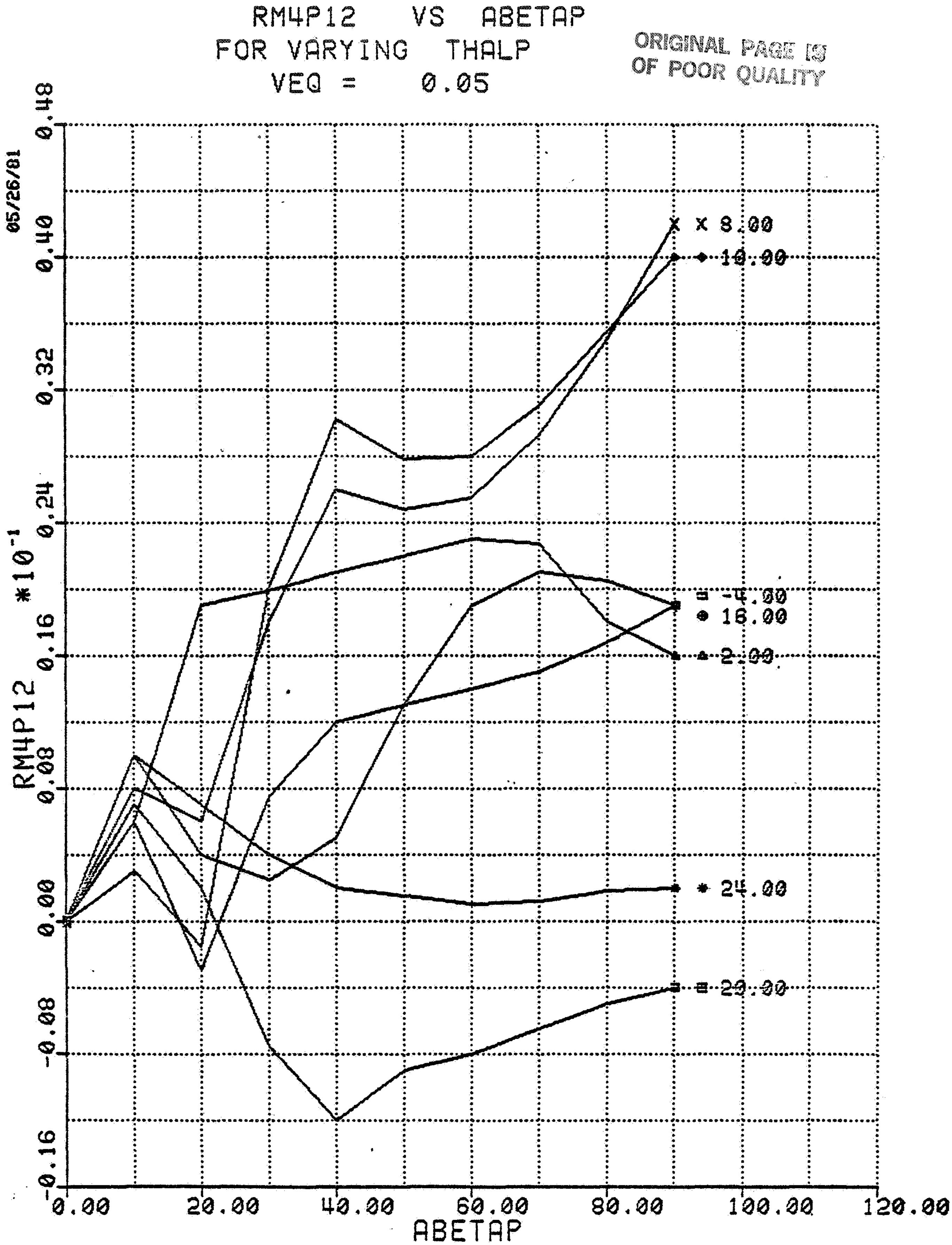

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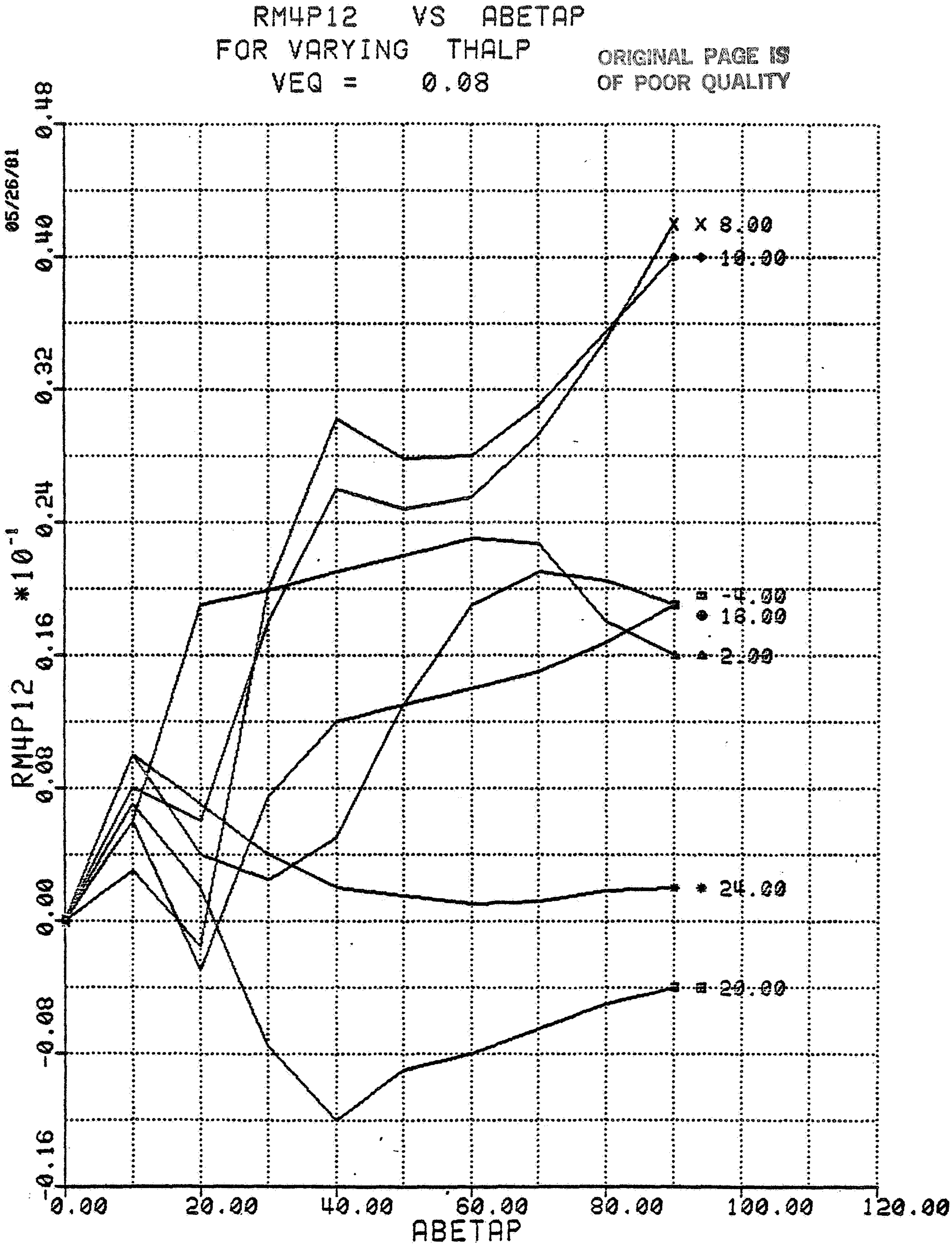
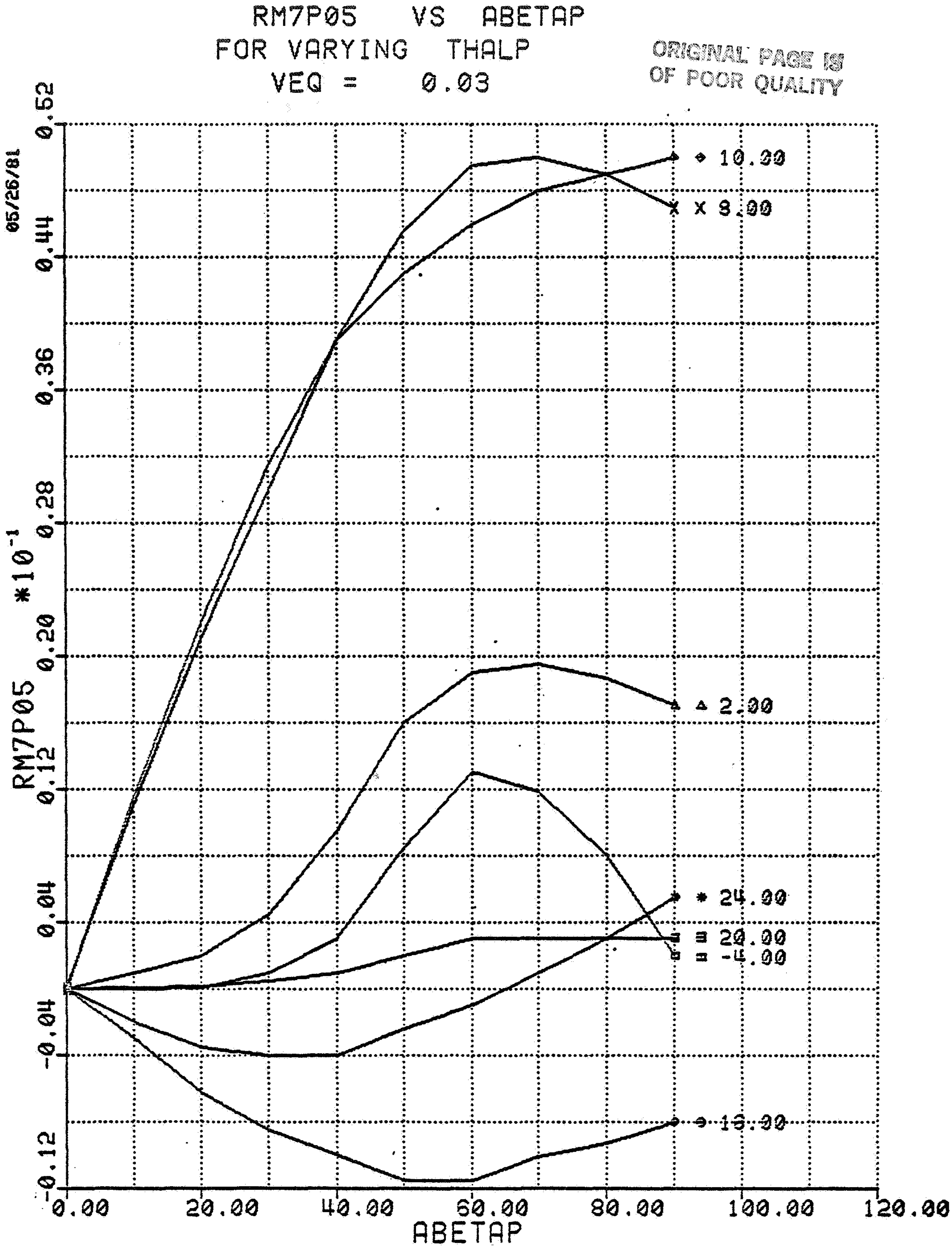
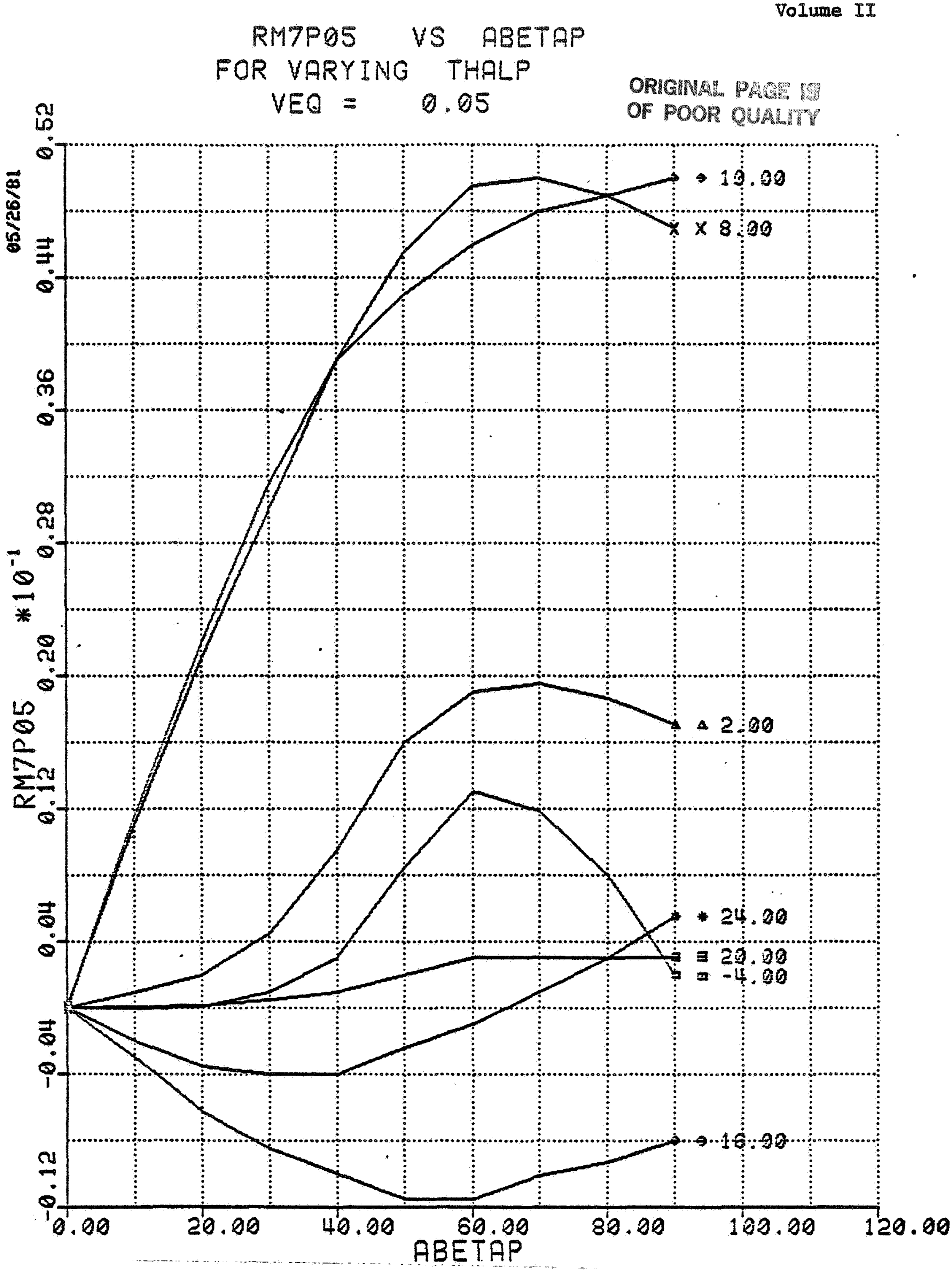
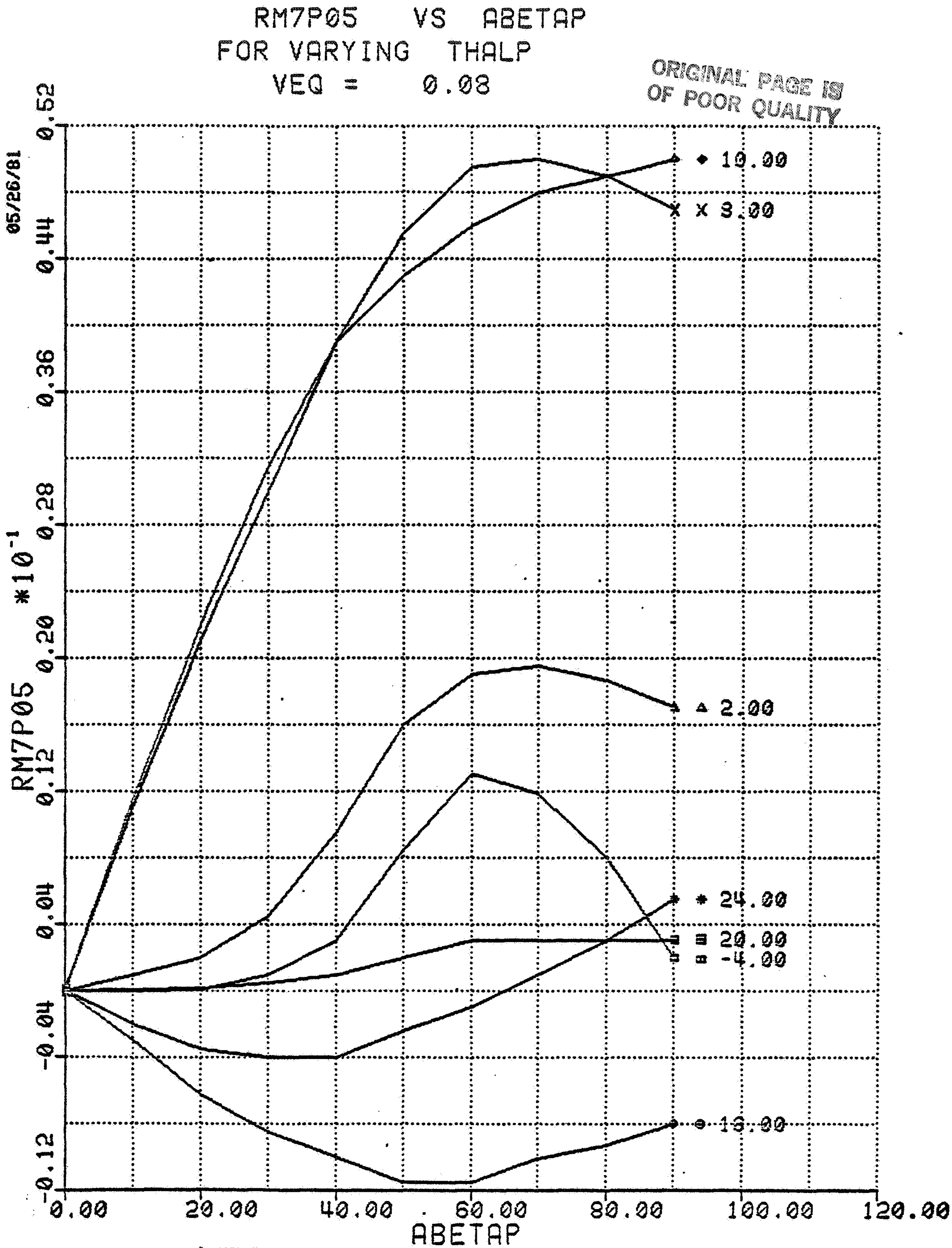
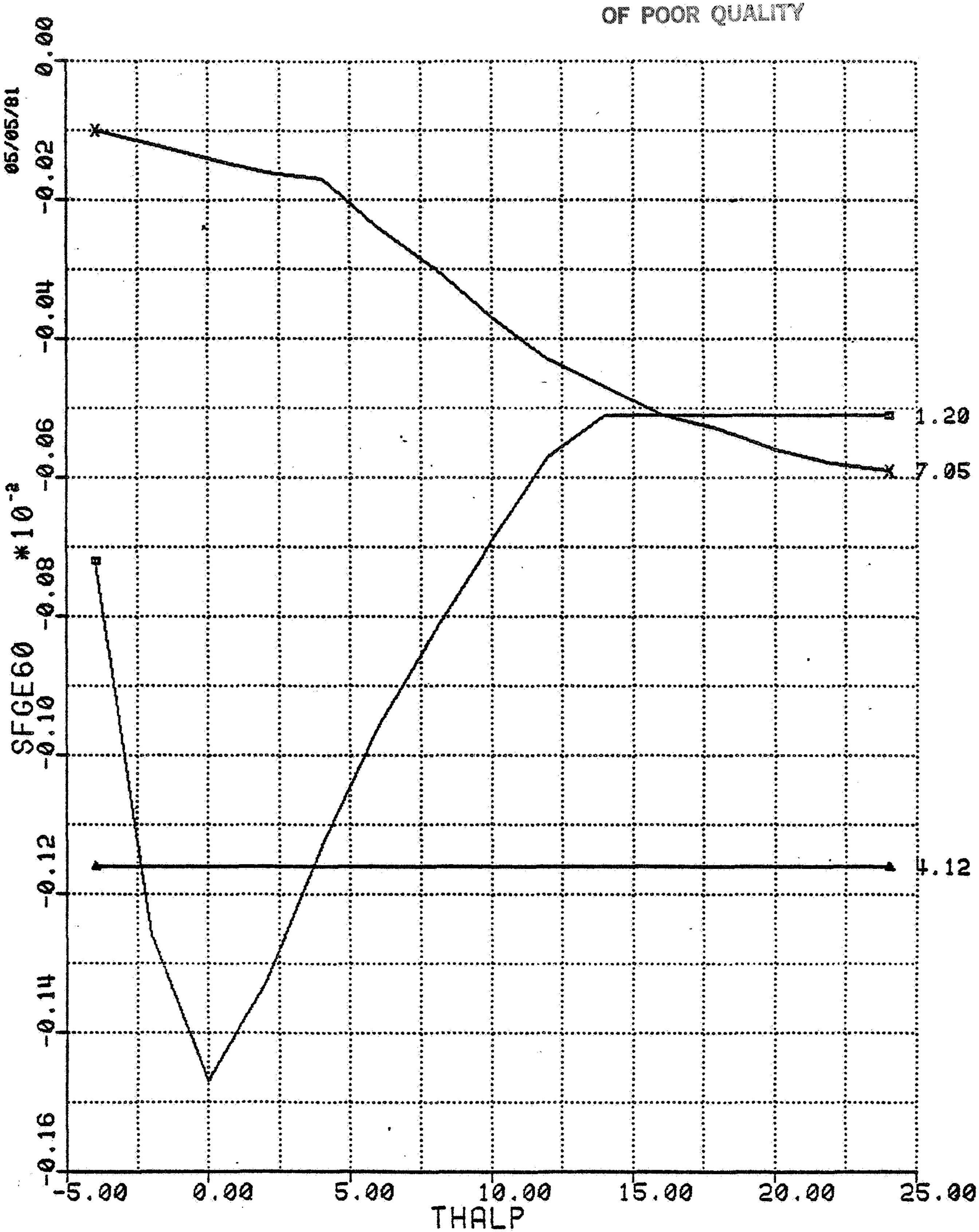


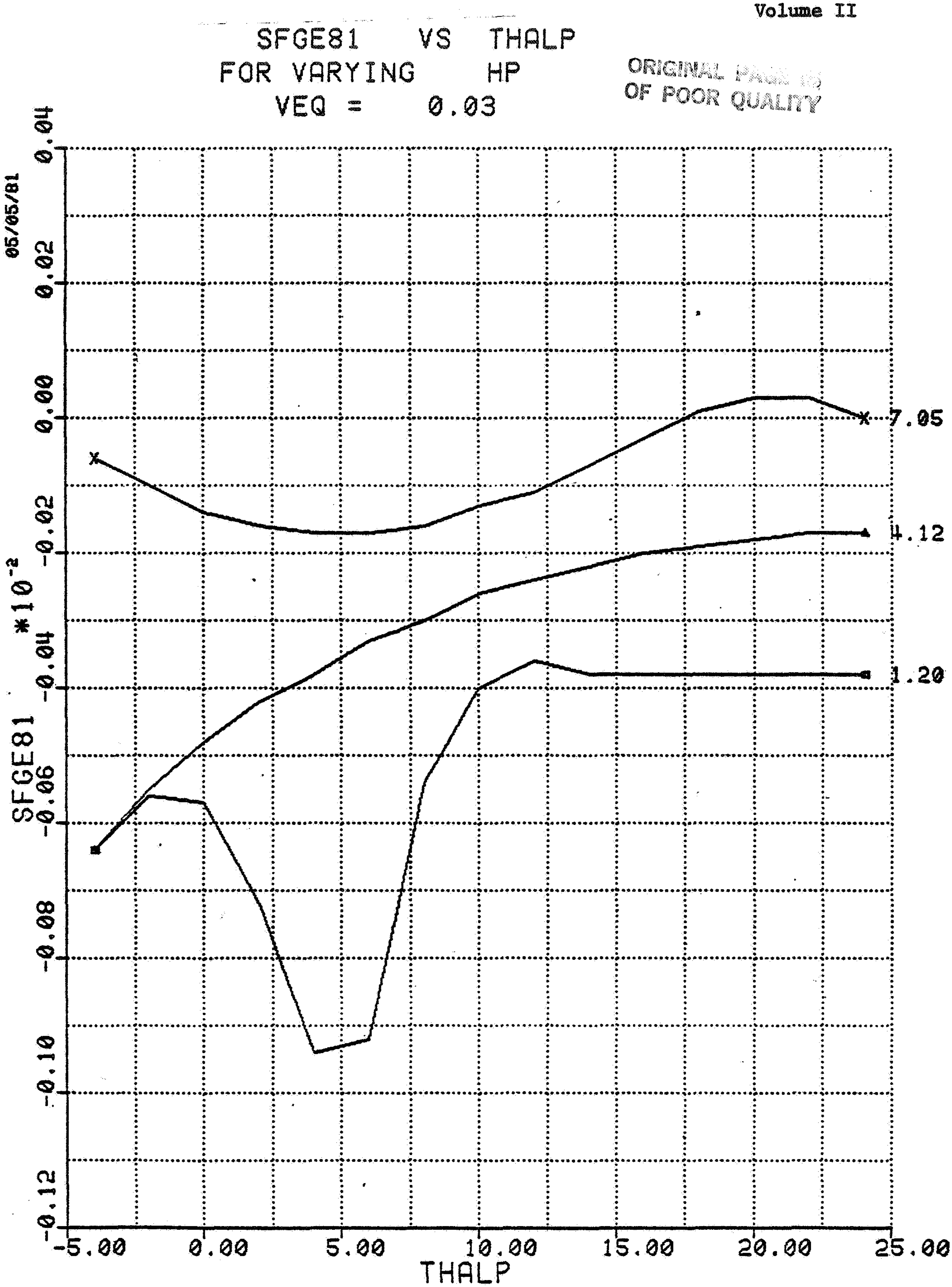

RM7P05 VS ABETAP
FOR VARYING THALP
VEQ = 0.03
05/26/81
RM7P05 *10^-1
0.52
0.44
0.36
0.28
0.20
0.12
0.04
-0.04
-0.12
0.00
20.00
40.00
60.00
80.00
100.00
120.00
ABETAP
◇ 10.00
X 8.00
△ 2.00
* 24.00
⊠ 20.00
⊡ -4.00
⊖ 16.00


RM7P05 VS ABETAP
FOR VARYING THALP
VEQ = 0.05
05/26/81
RM7P05 *10⁻¹
ABETAP
0.00
20.00
40.00
60.00
80.00
100.00
120.00
-0.12
-0.04
0.04
0.12
0.20
0.28
0.36
0.44
0.52
10.00
8.00
2.00
24.00
20.00
-4.00
16.00


RM7P05 VS ABETAP
FOR VARYING THALP
VEQ = 0.08
05/26/81
RM7P05 *10⁻¹
0.52
0.44
0.36
0.28
0.20
0.12
0.04
-0.04
-0.12
0.00
20.00
40.00
60.00
80.00
100.00
120.00
ABETAP
◆ 10.00
X 8.00
△ 2.00
✱ 24.00
⊞ 20.00
⊡ -4.00
⊖ 16.00

SFGE60 VS THALP
FOR VARYING HP




SFGE81 VS THALP
FOR VARYING HP
VEQ = 0.03
05/05/81
SFGE81 *10⁻²
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
7.05
4.12
1.20
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP

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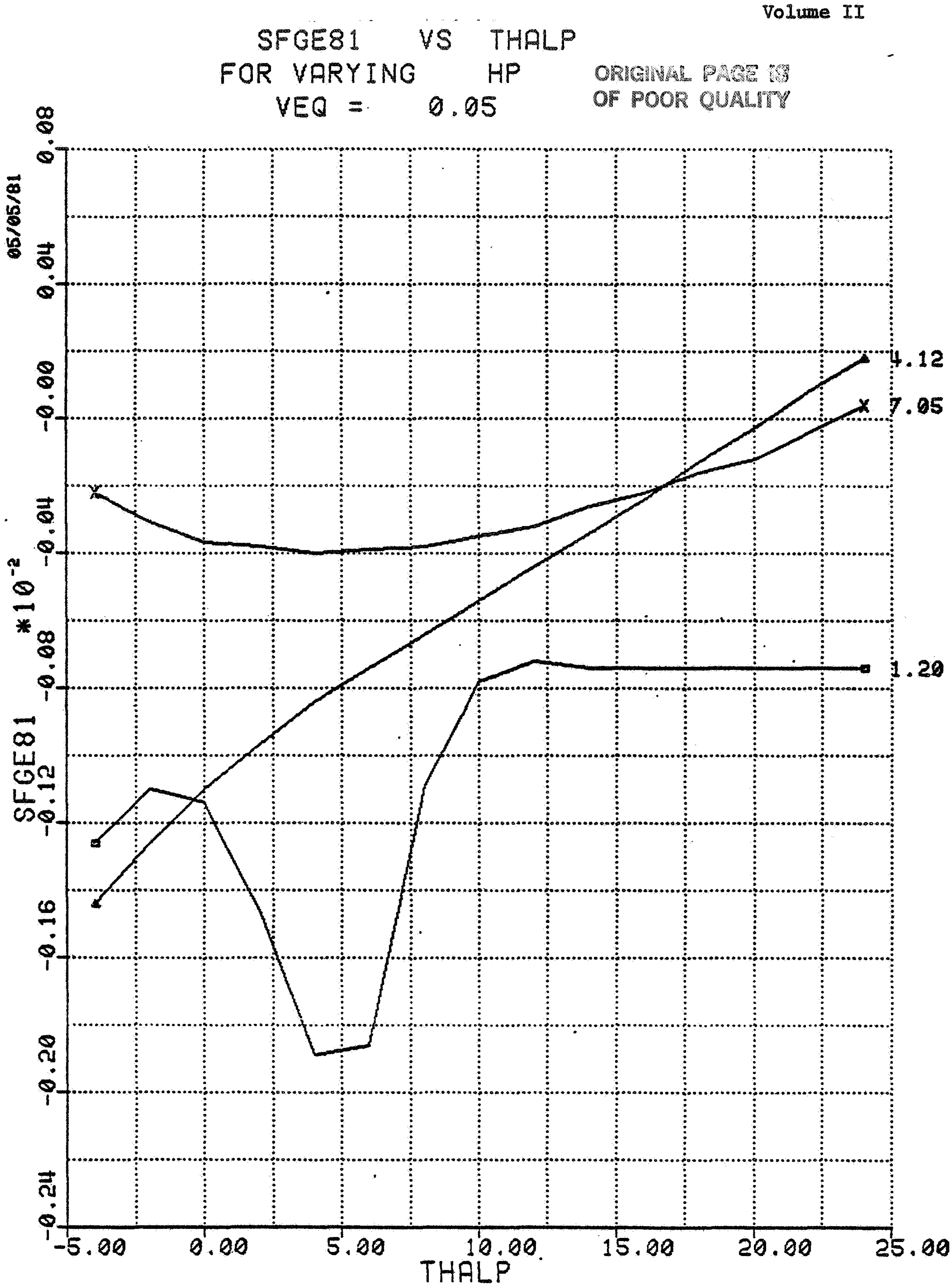
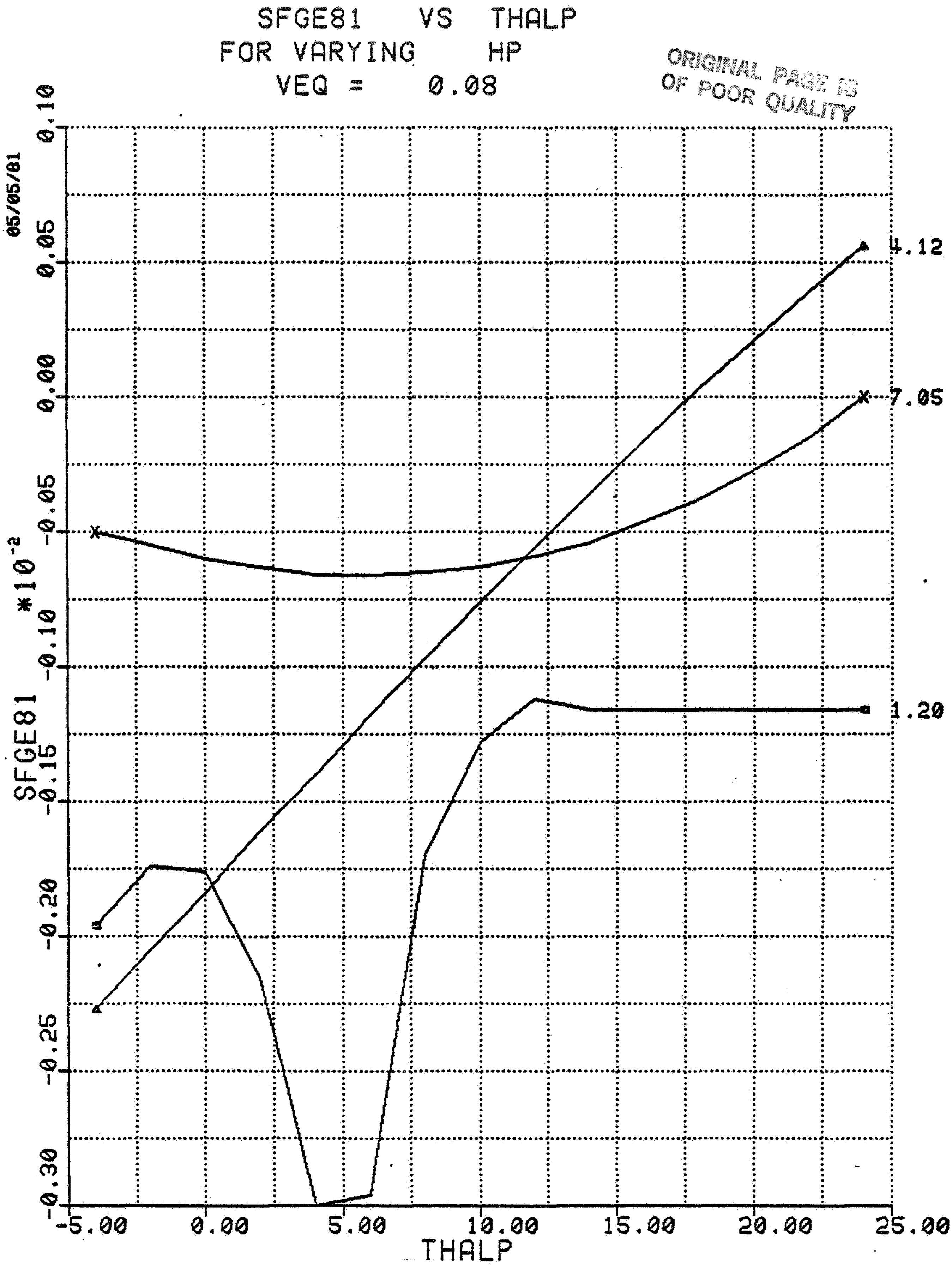
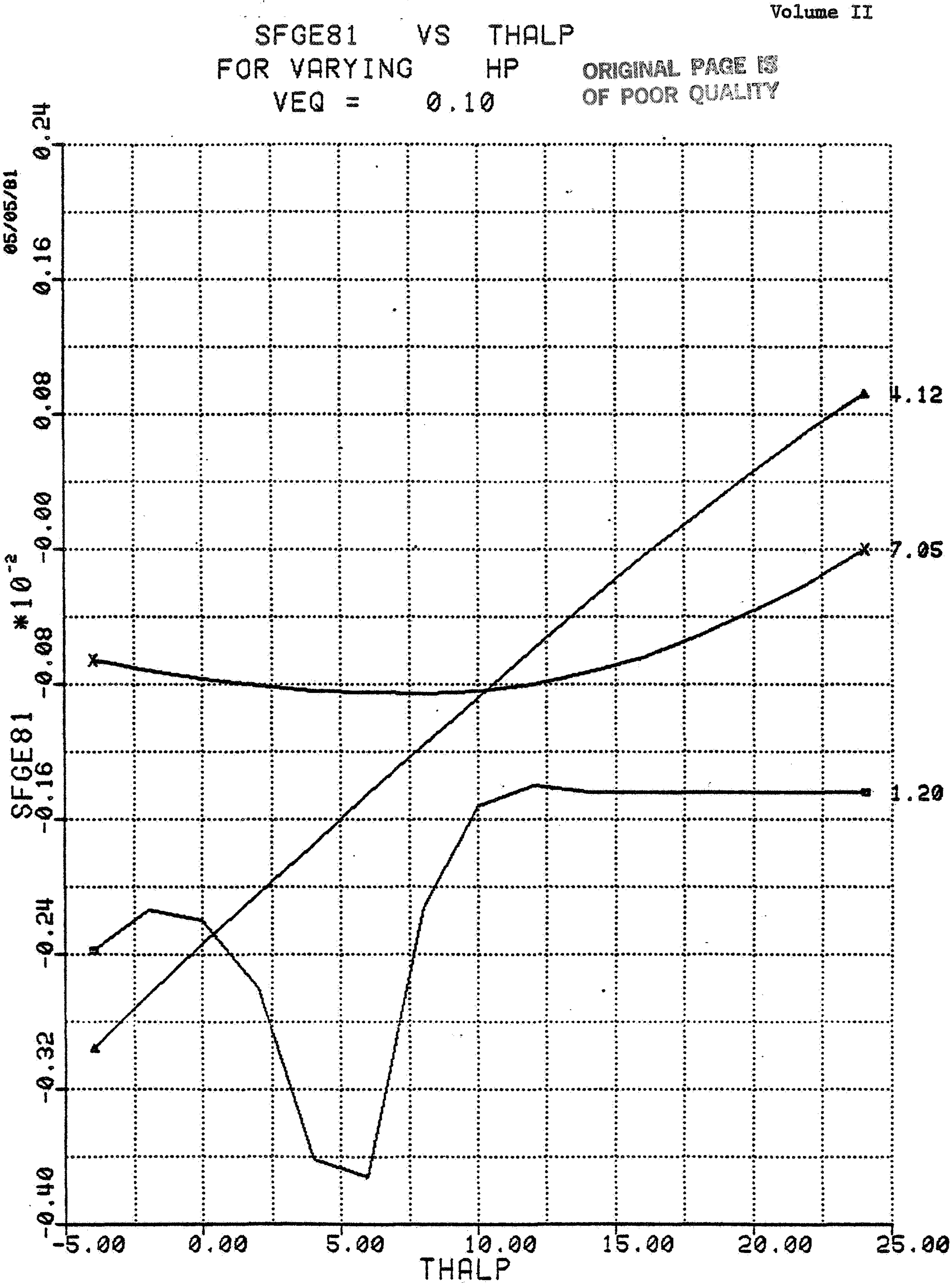
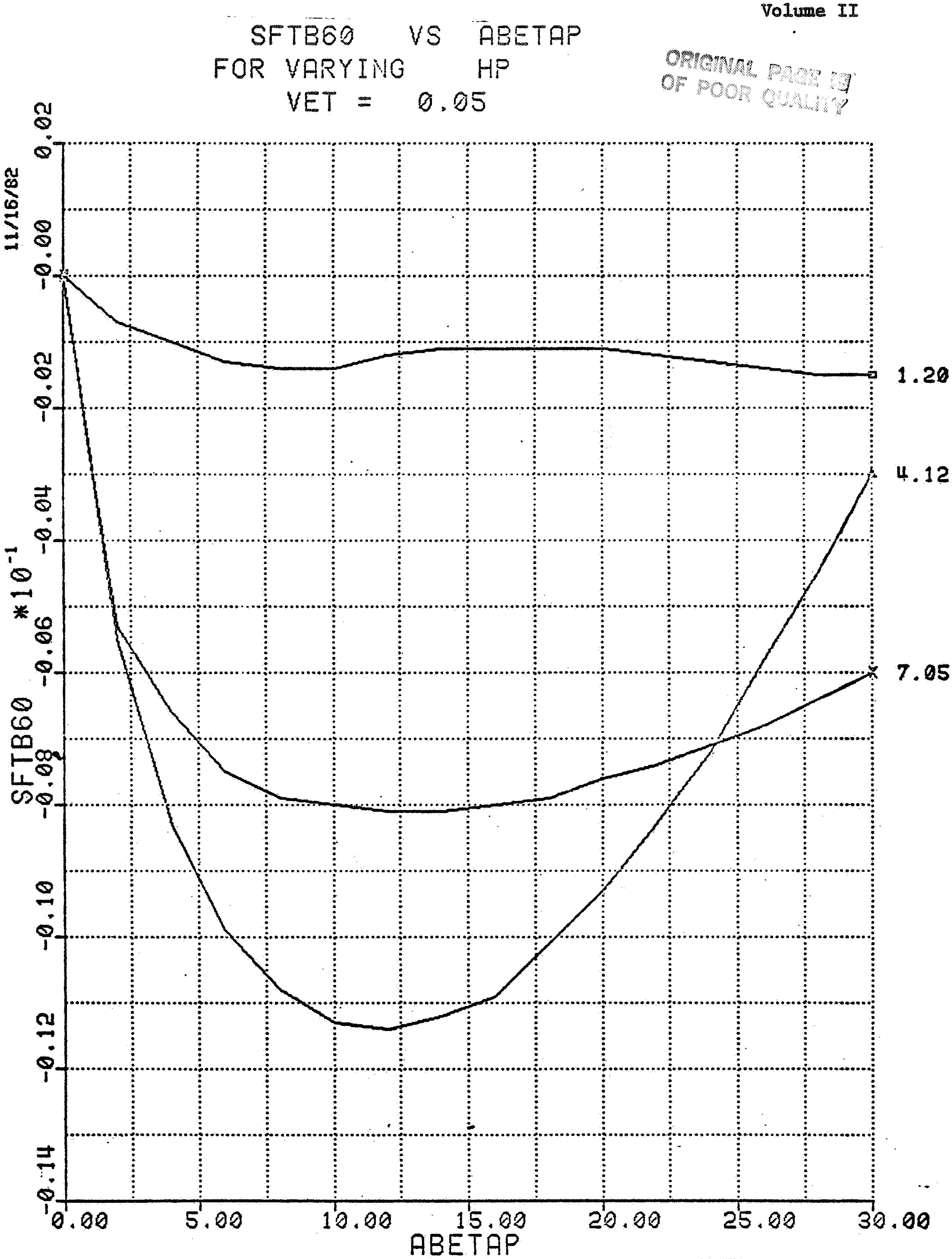
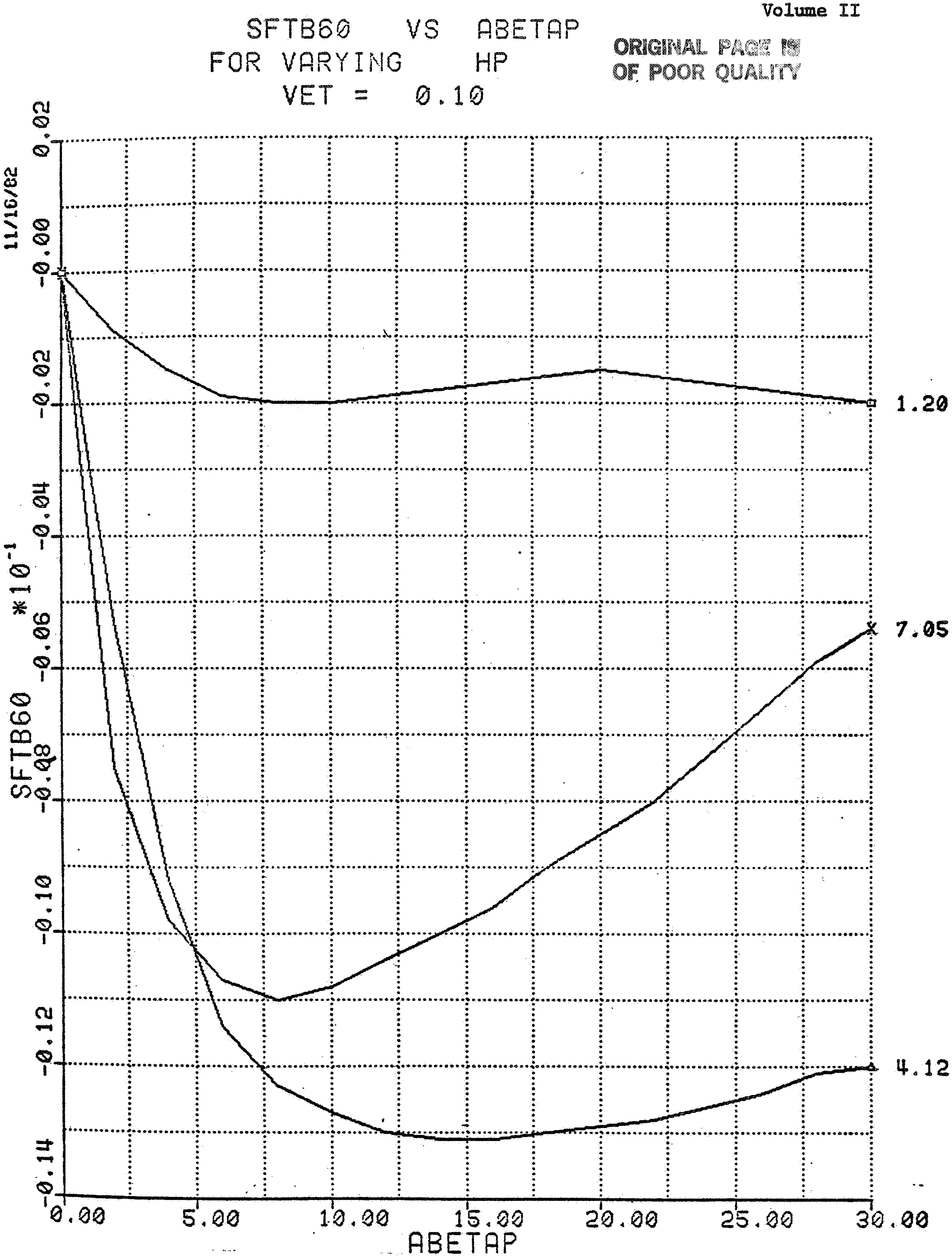
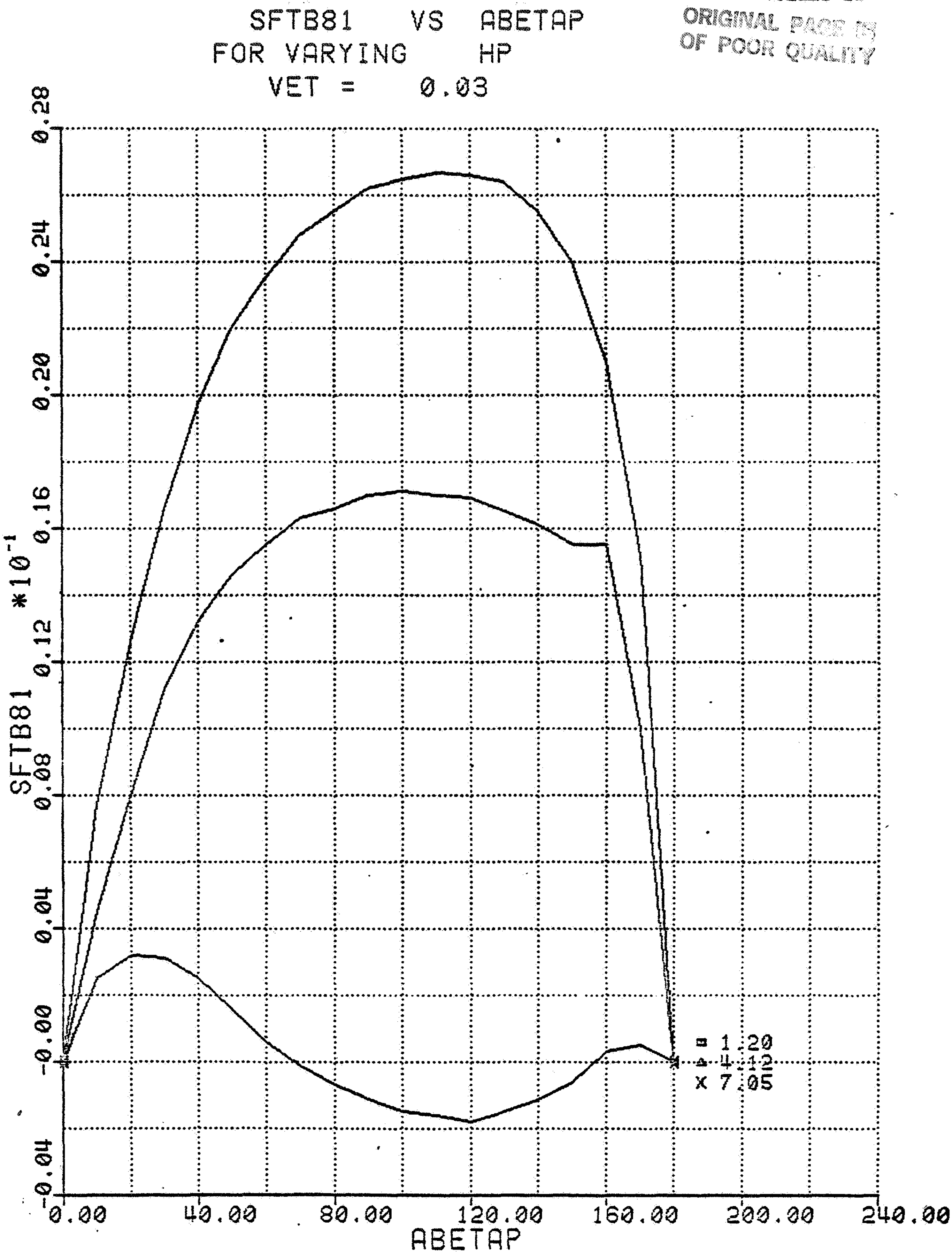



SFGE81 VS THALP
FOR VARYING HP
VEQ = 0.08
05/05/81
SFGE81 *10^-2
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
4.12
7.05
1.20


SFGE81 VS THALP
FOR VARYING HP
VEQ = 0.10
05/05/81
SFGE81 *10⁻²
0.24
0.16
0.08
-0.00
-0.08
-0.16
-0.24
-0.32
-0.40
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
4.12
7.05
1.20


SFTB60 VS ABETAP
FOR VARYING HP
VET = 0.05
11/16/82
SFTB60 *10^-1
ABETAP
0.02
-0.00
-0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
0.00
5.00
10.00
15.00
20.00
25.00
30.00
1.20
4.12
7.05


SFTB60 VS ABETAP
FOR VARYING HP
VET = 0.10
11/16/82
SFTB60 *10⁻¹
0.02
-0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
0.00
5.00
10.00
15.00
20.00
25.00
30.00
ABETAP
1.20
7.05
4.12


SFTB81 VS ABETAP
FOR VARYING HP
VET = 0.03
SFTB81 *10^-1
0.28
0.24
0.20
0.16
0.12
0.08
0.04
-0.00
-0.04
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP
□ 1.20
△ 4.12
x 7.05

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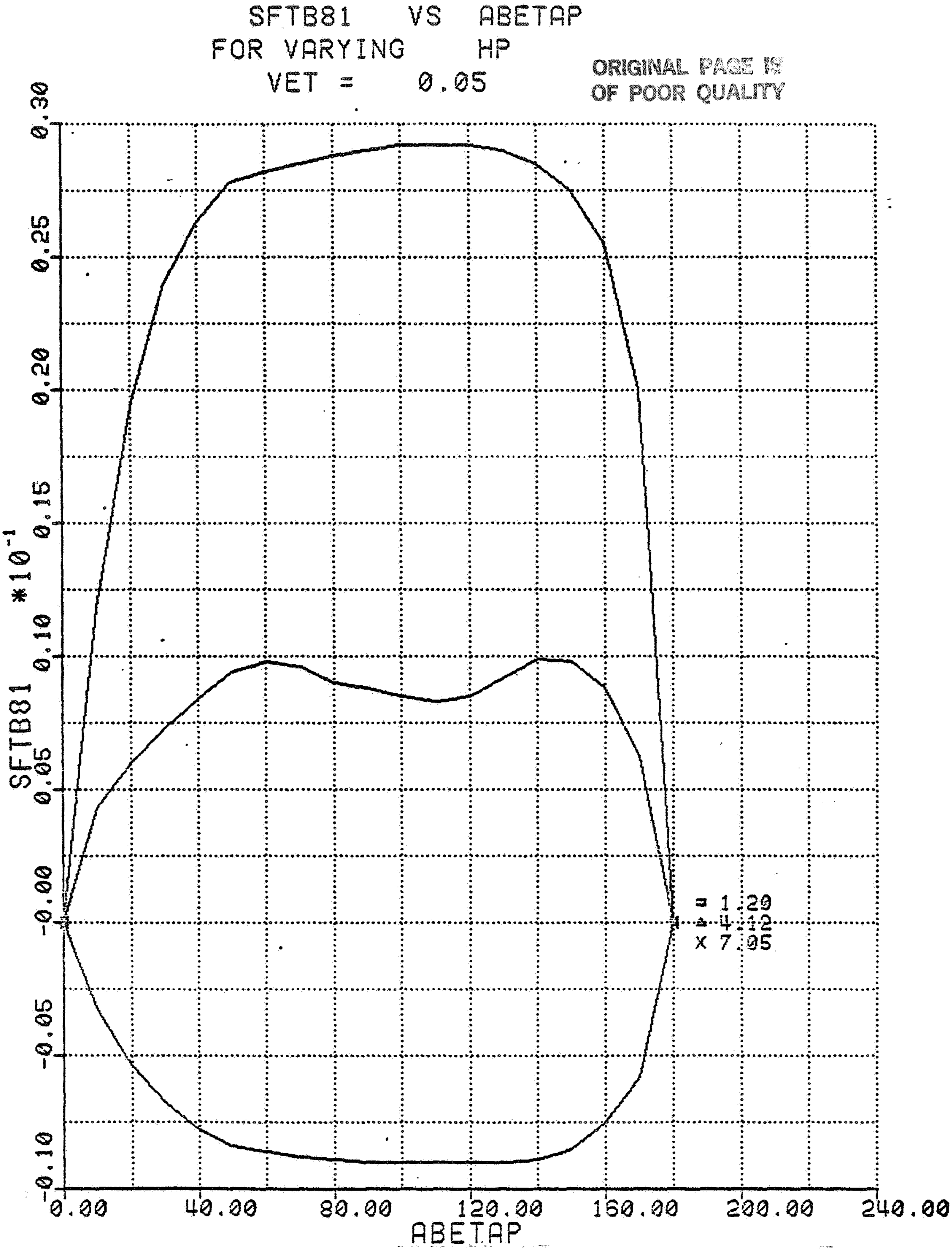
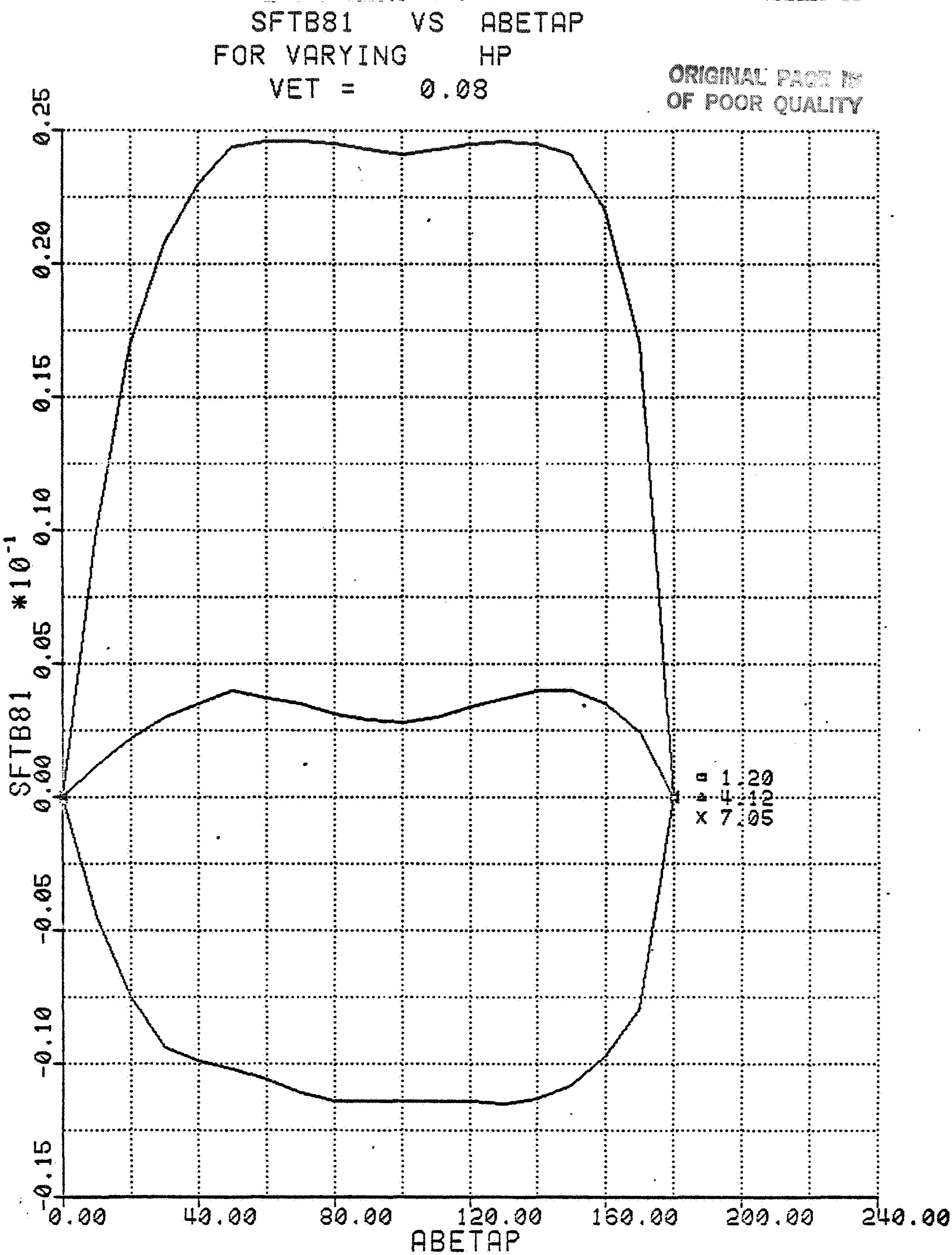
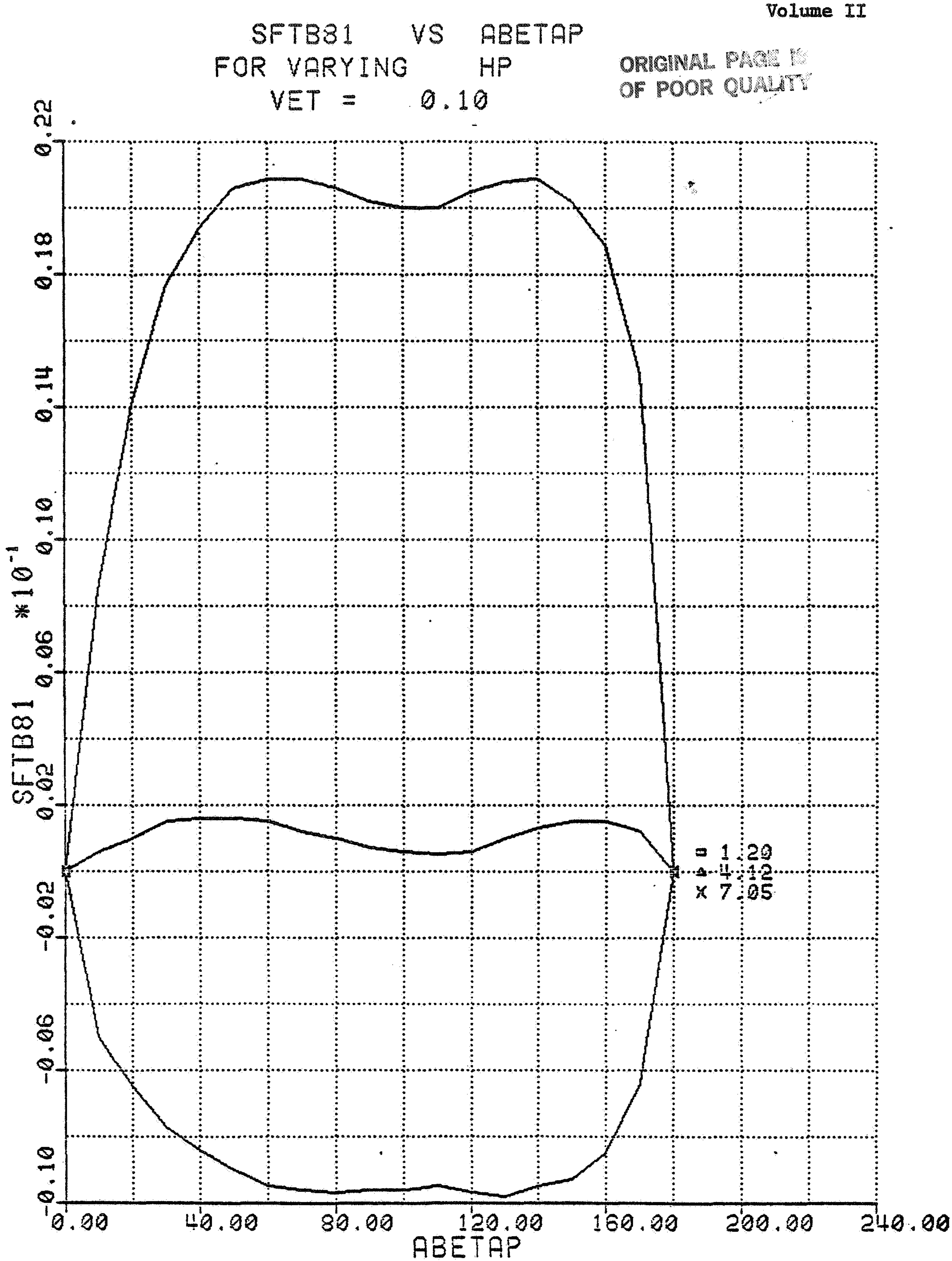
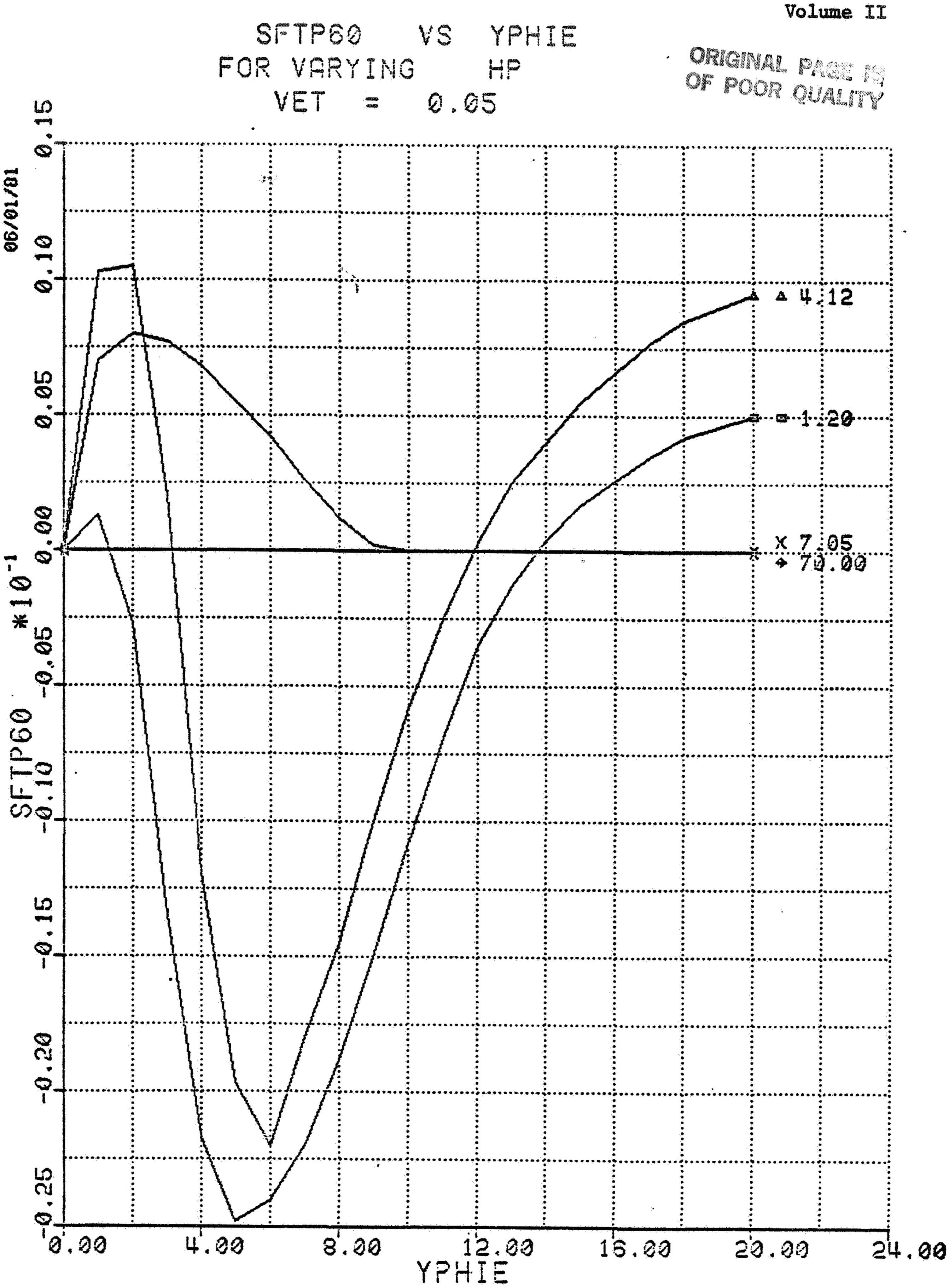
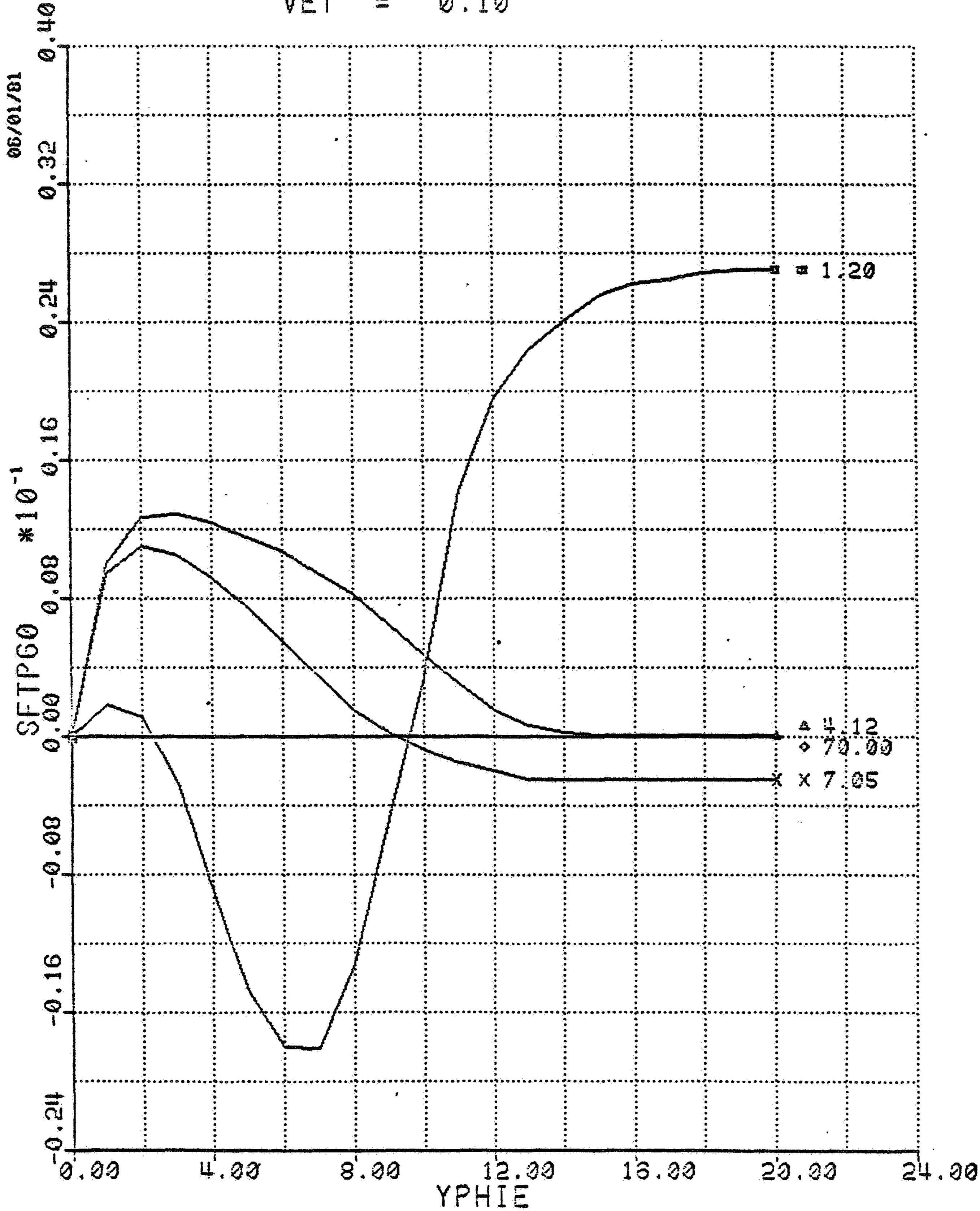



SFTB81 VS ABETAP
FOR VARYING HP
VET = 0.08
SFTB81 *10^{-1}
ABETAP
0.25
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
0.00
40.00
80.00
120.00
160.00
200.00
240.00
□ 1.20
△ 4.12
x 7.05

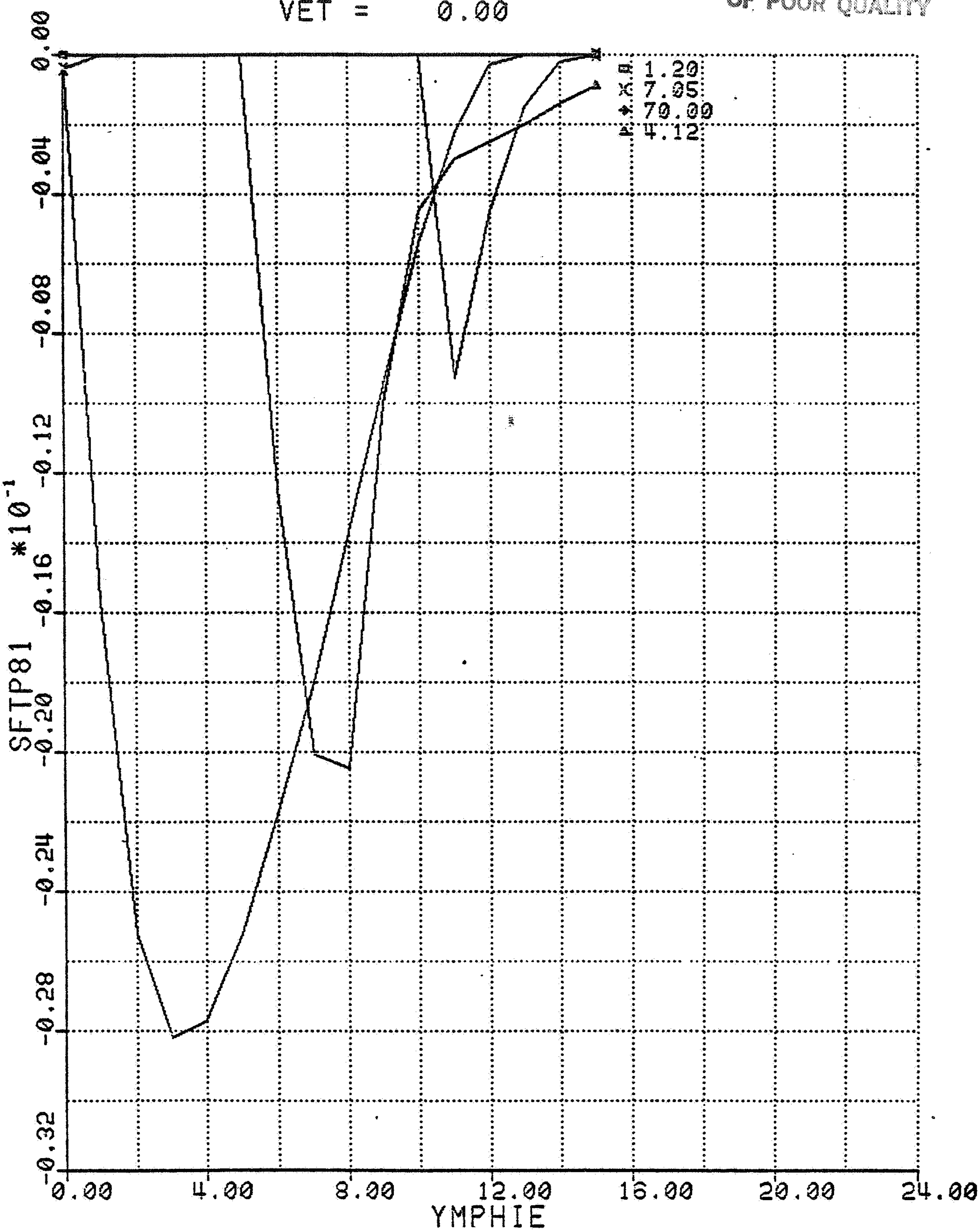

SFTB81 VS ABETAP
FOR VARYING HP
VET = 0.10
SFTB81 *10⁻¹
0.22
0.18
0.14
0.10
0.06
0.02
-0.02
-0.06
-0.10
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP
1.20
4.12
7.05


SFTP60 VS YPHIE
FOR VARYING HP
VET = 0.05
06/01/81
SFTP60 *10^{-1}
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
0.00
4.00
8.00
12.00
16.00
20.00
24.00
YPHIE
4.12
1.20
7.05
70.00

SFTP60 VS YPHIE
FOR VARYING HP
VET = 0.10



SFTP81 VS YMPHIE
FOR VARYING HP
VET = 0.00



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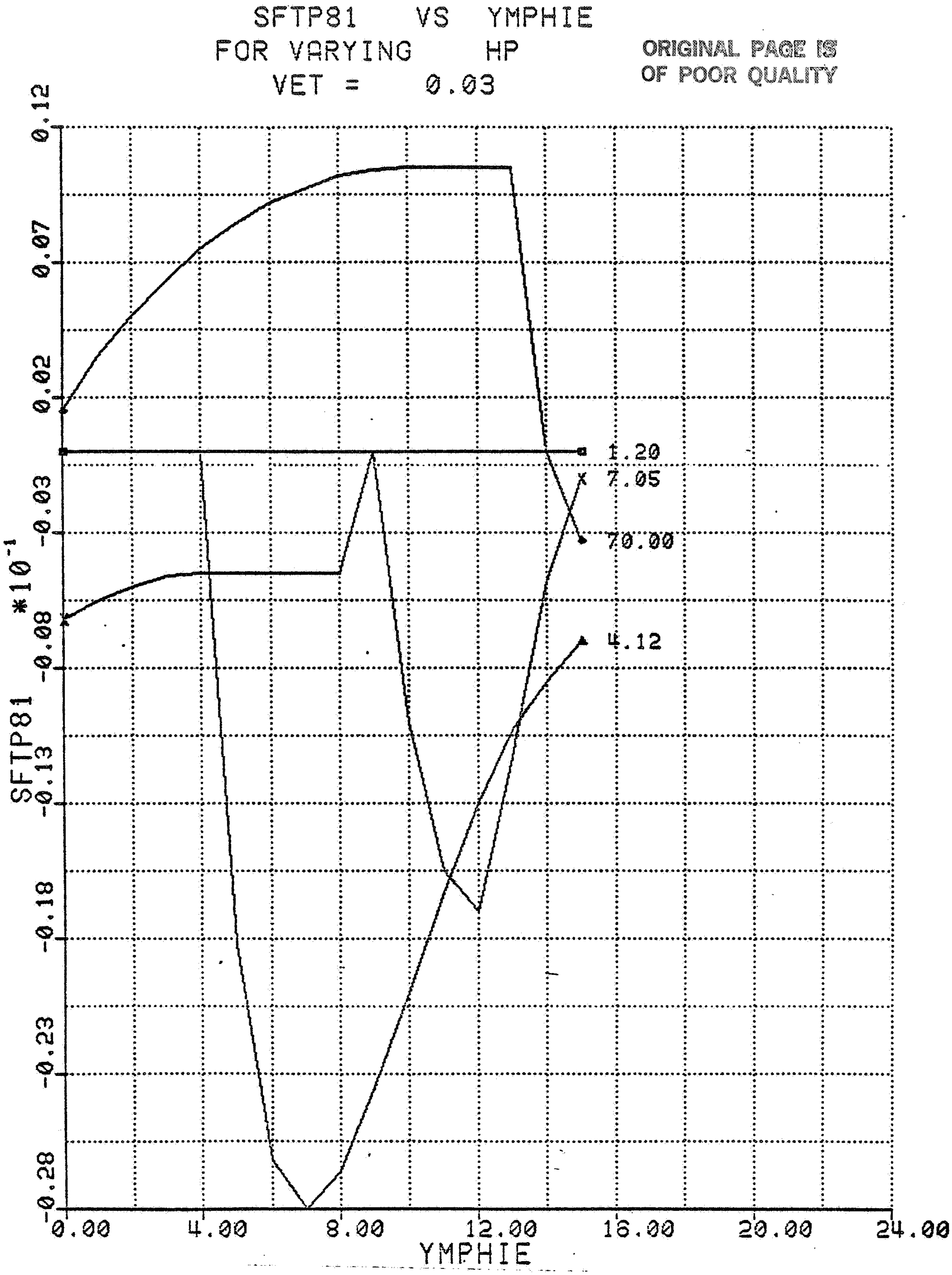

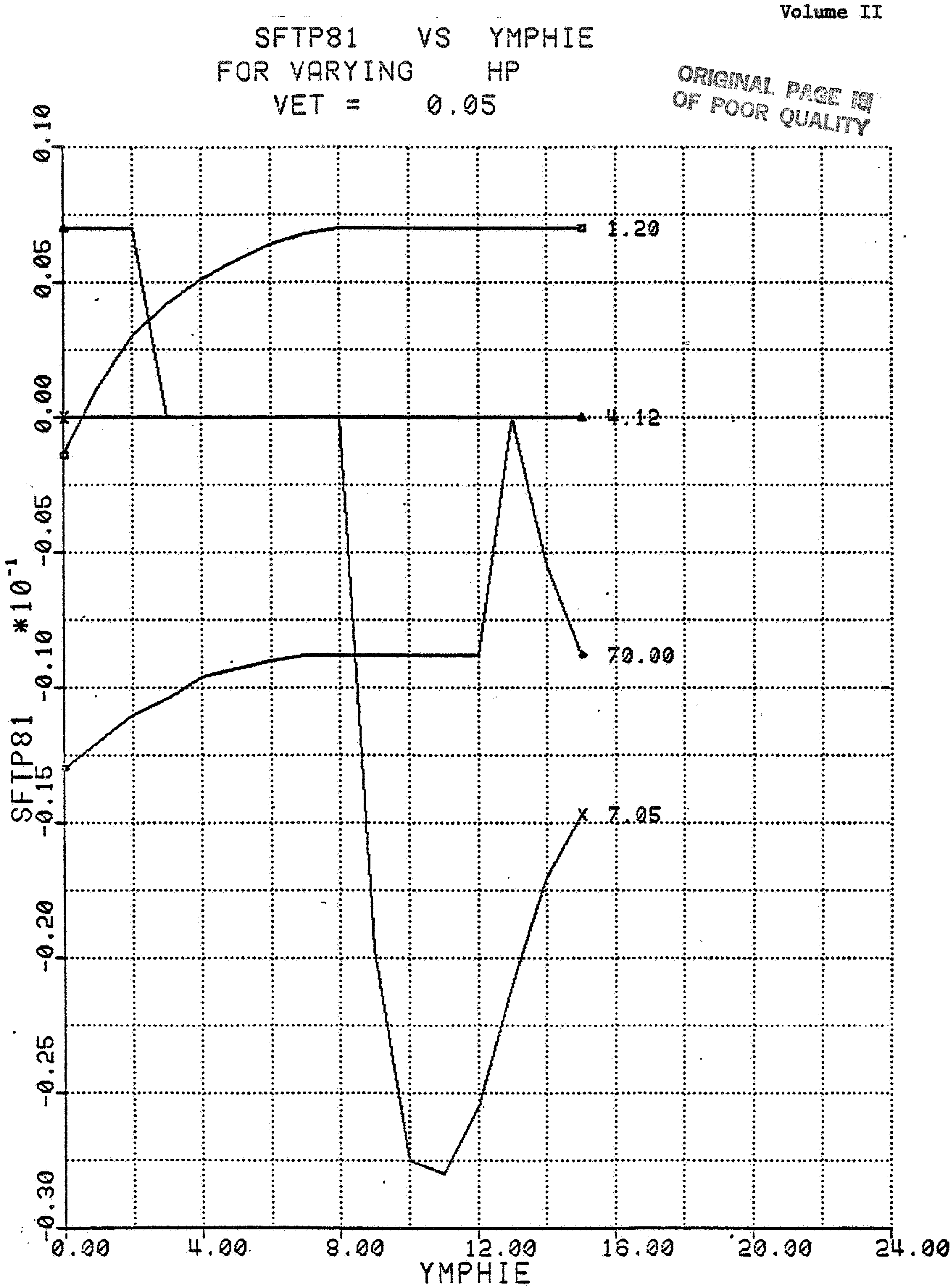
SFTP81 VS YMPHIE
FOR VARYING HP
VET = 0.05
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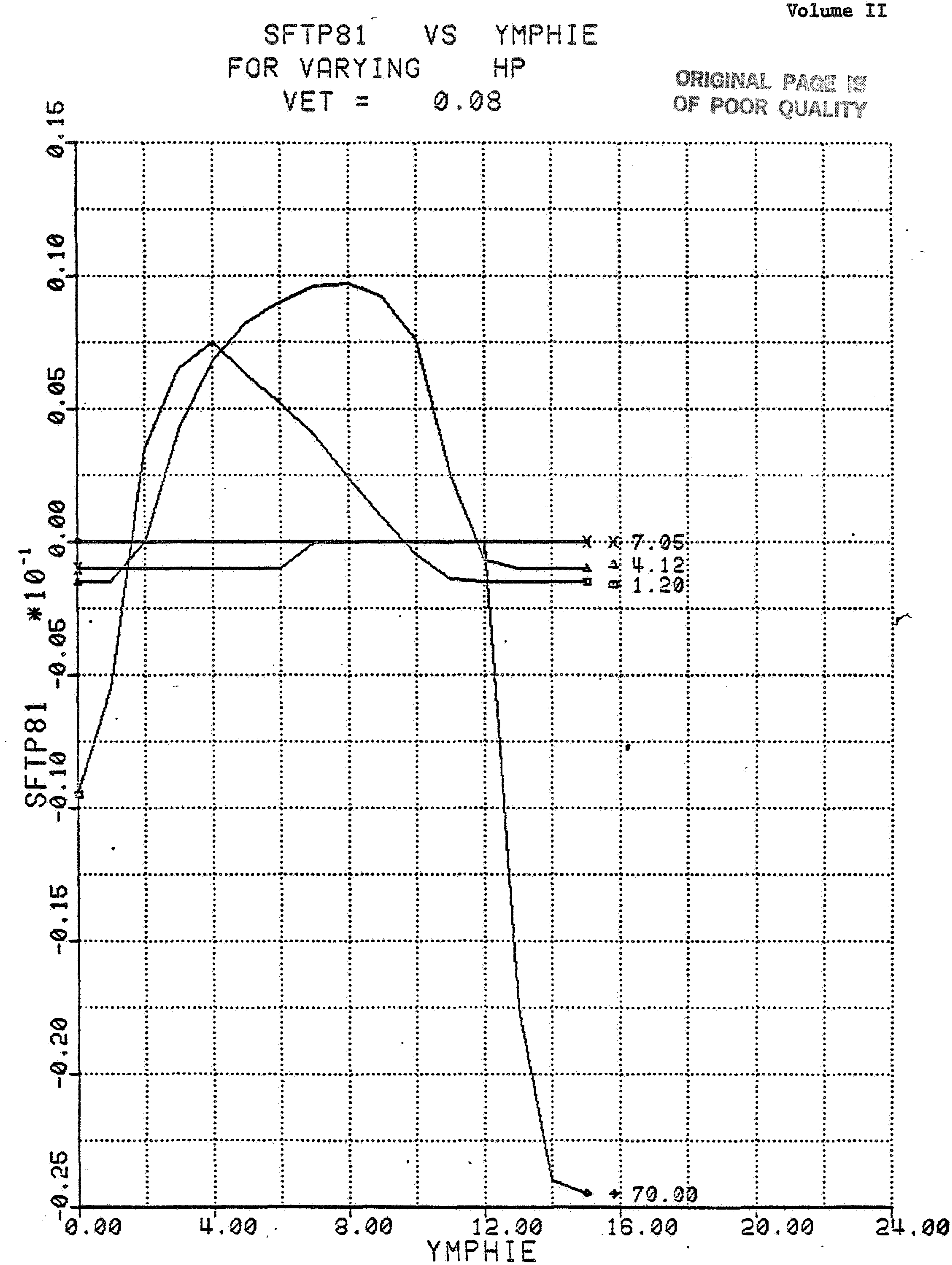
SFTP81 *10^-1
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
1.20
4.12
70.00
7.05
0.00
4.00
8.00
12.00
16.00
20.00
24.00
YMPHIE



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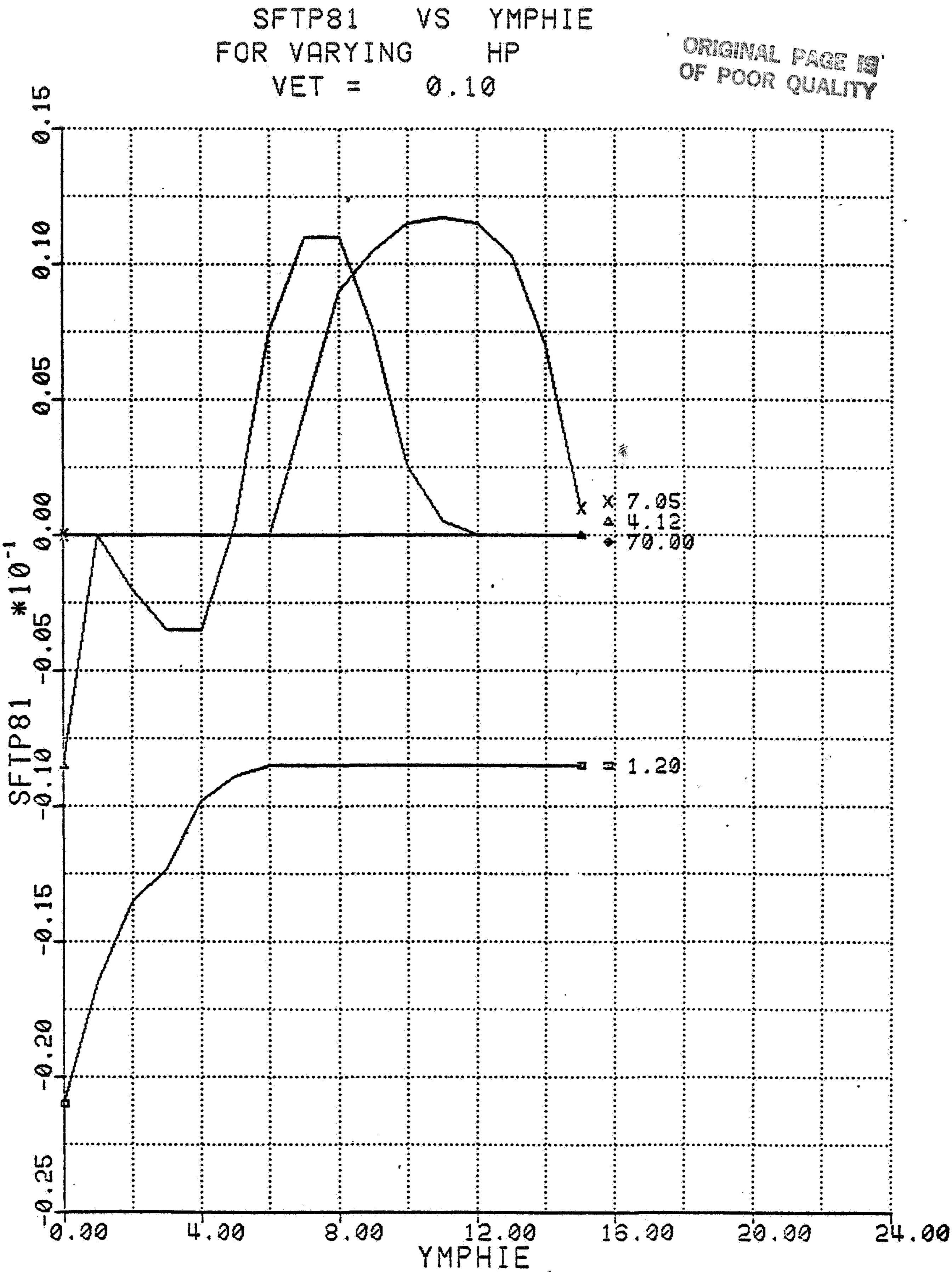
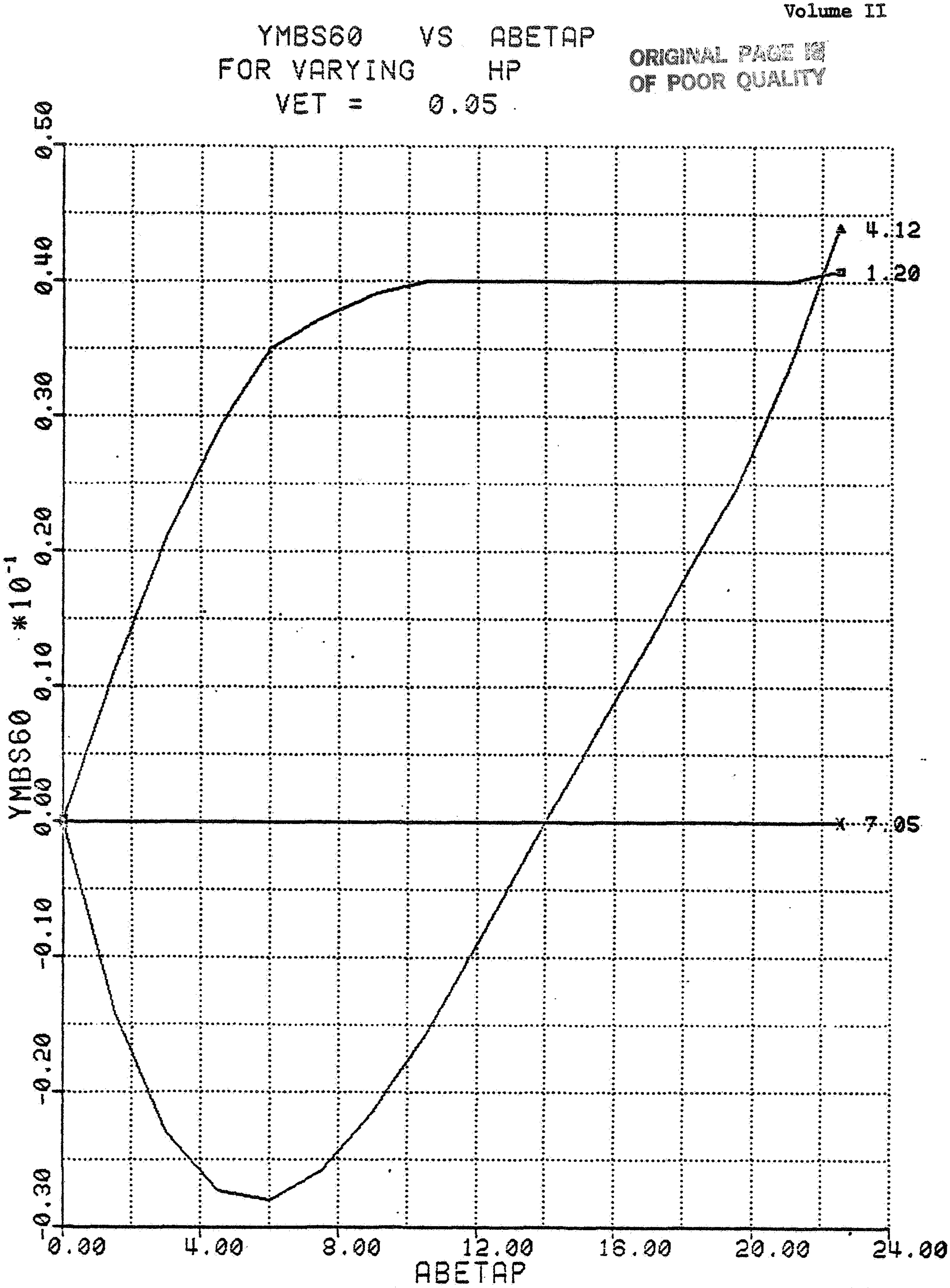
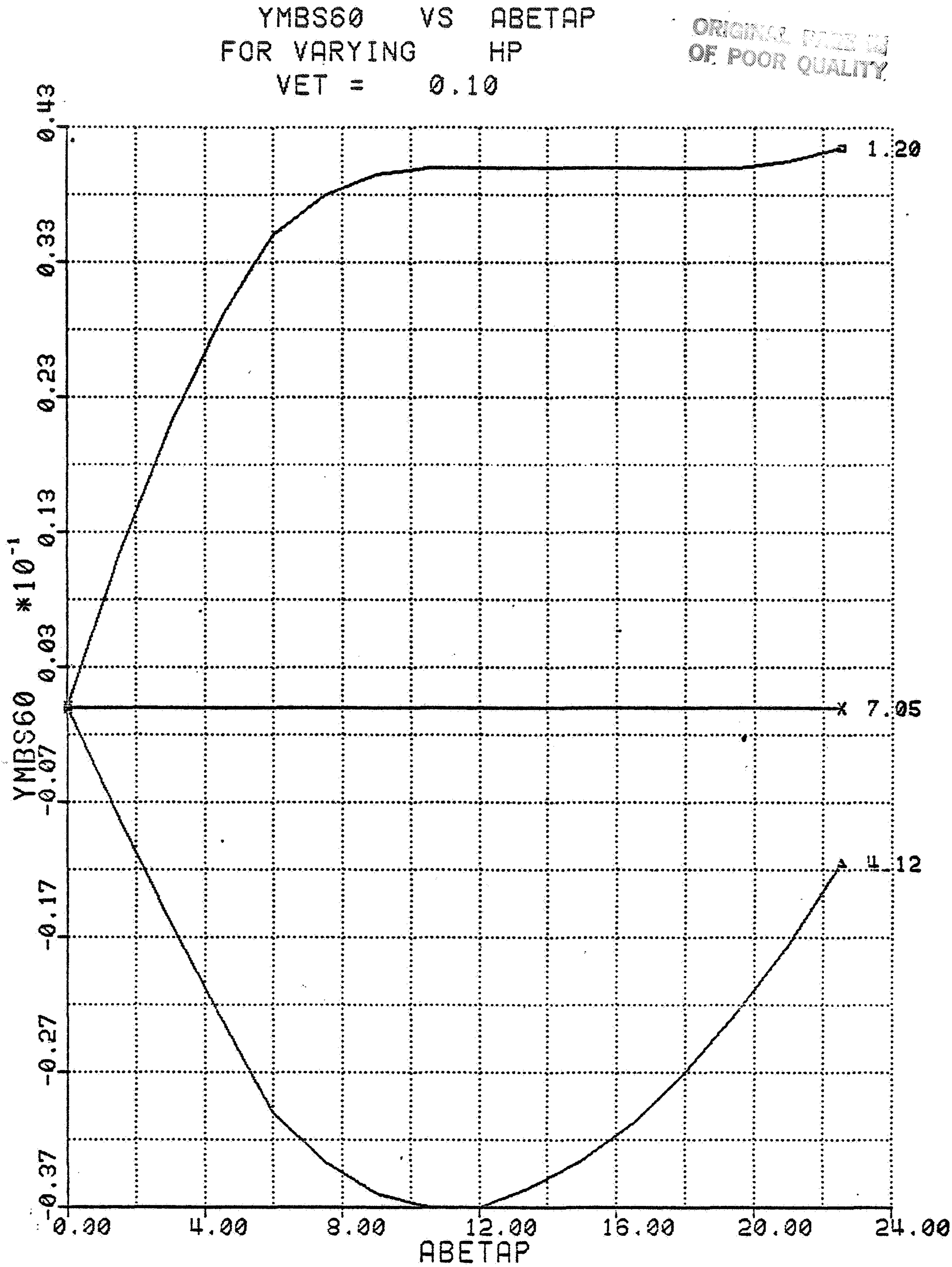
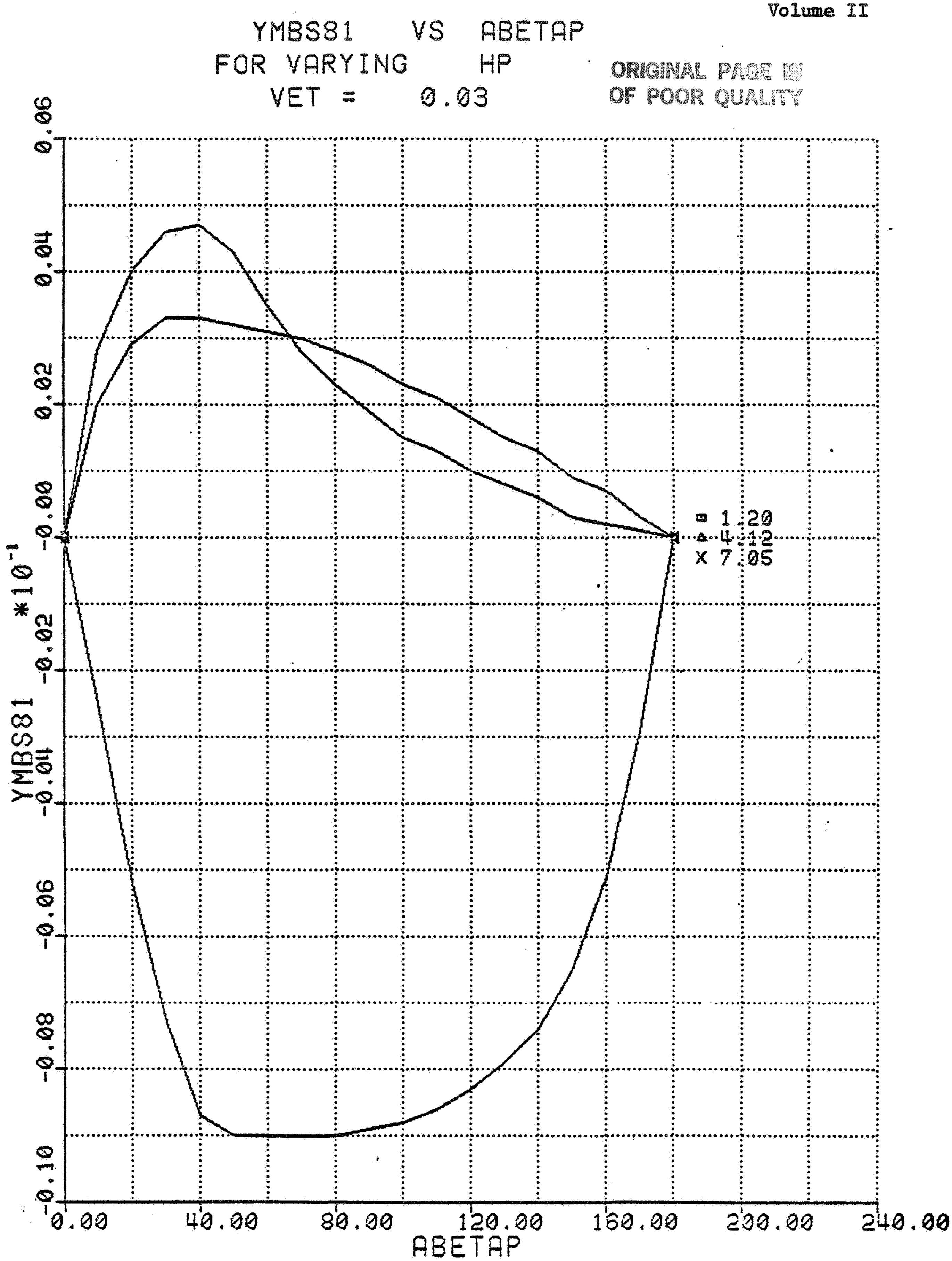
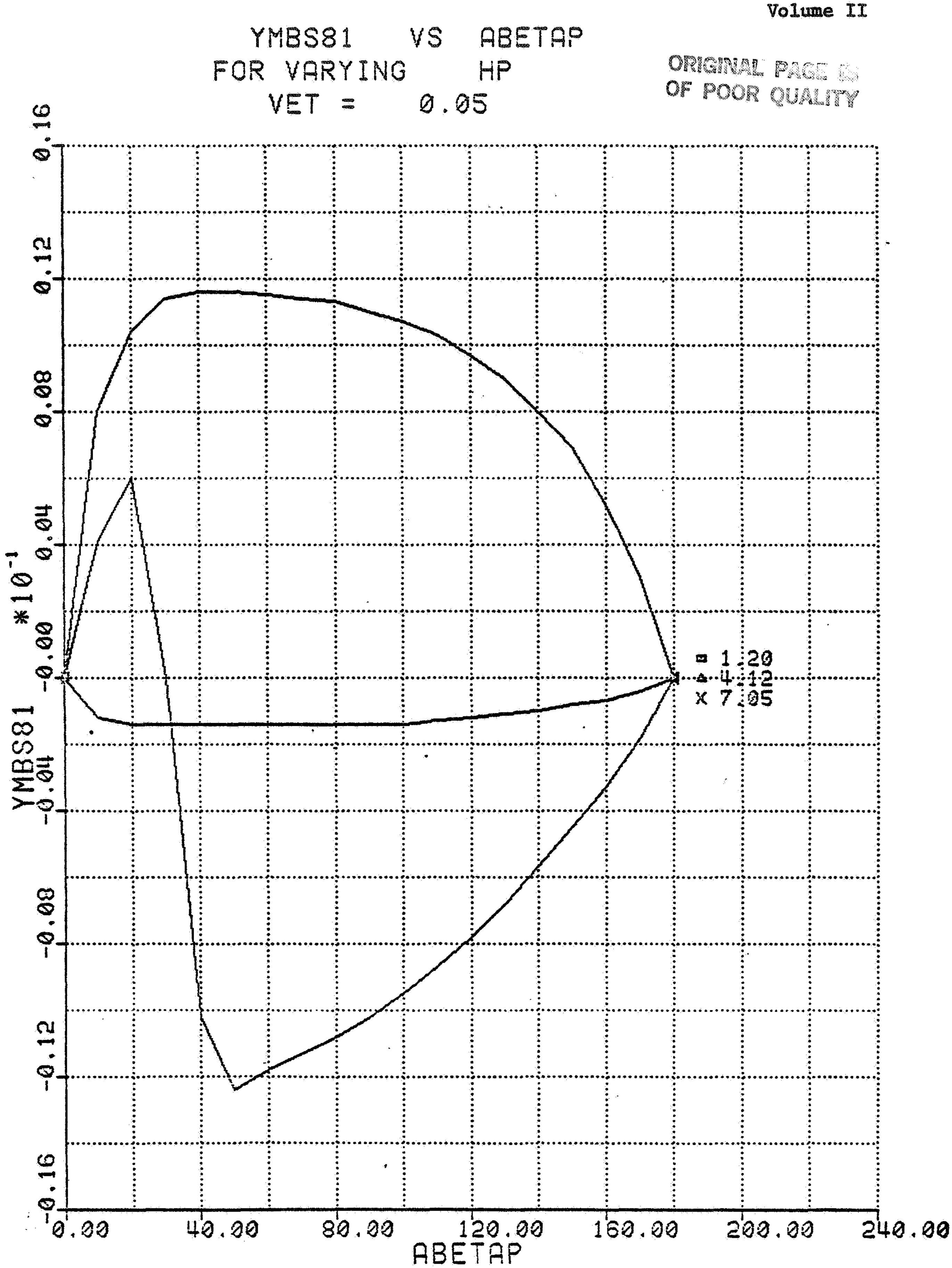
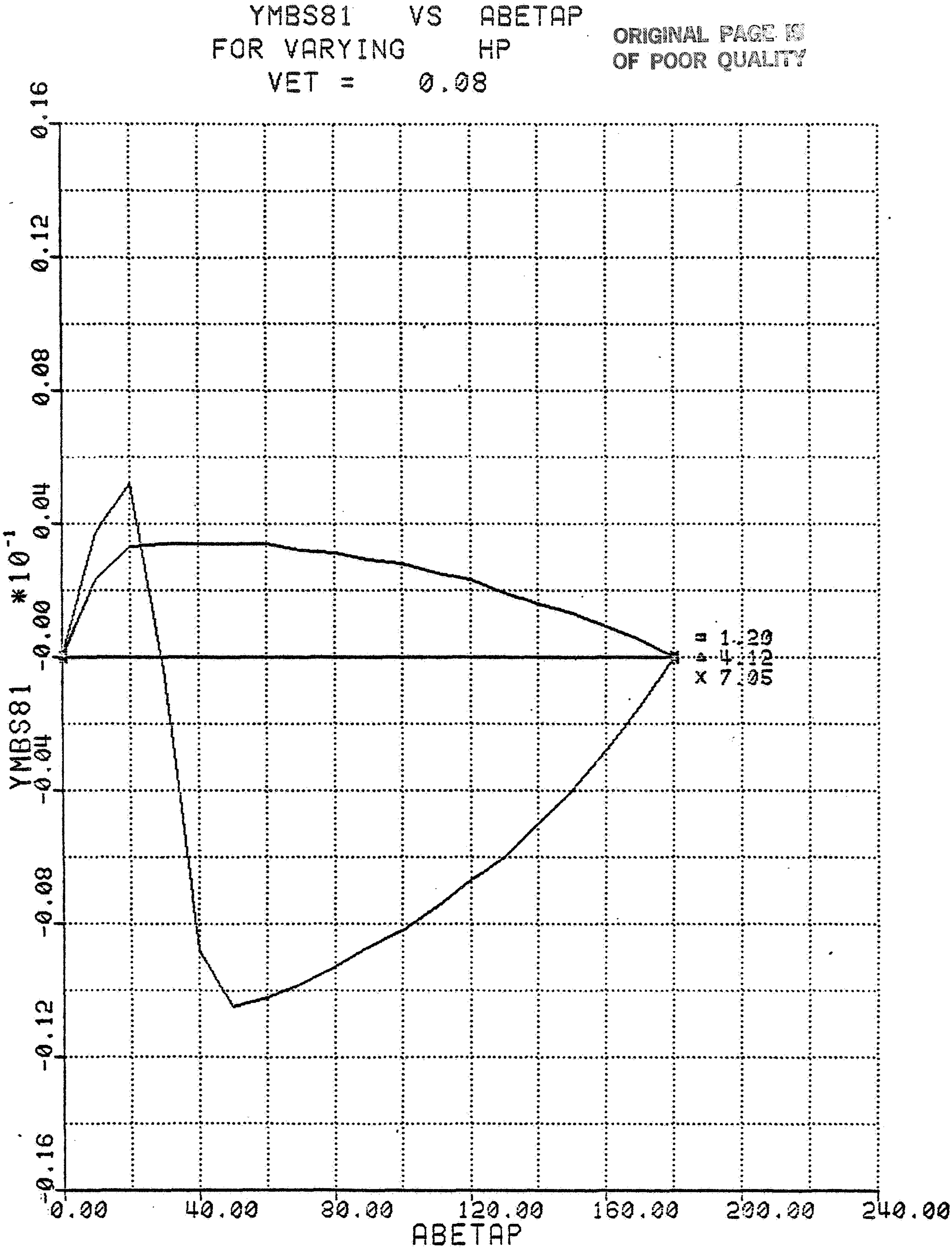

SFTP81 VS YMPHIE
FOR VARYING HP
VET = 0.10
SFTP81 *10⁻¹
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
0.00
4.00
8.00
12.00
16.00
20.00
24.00
YMPHIE
7.05
4.12
70.00
1.20

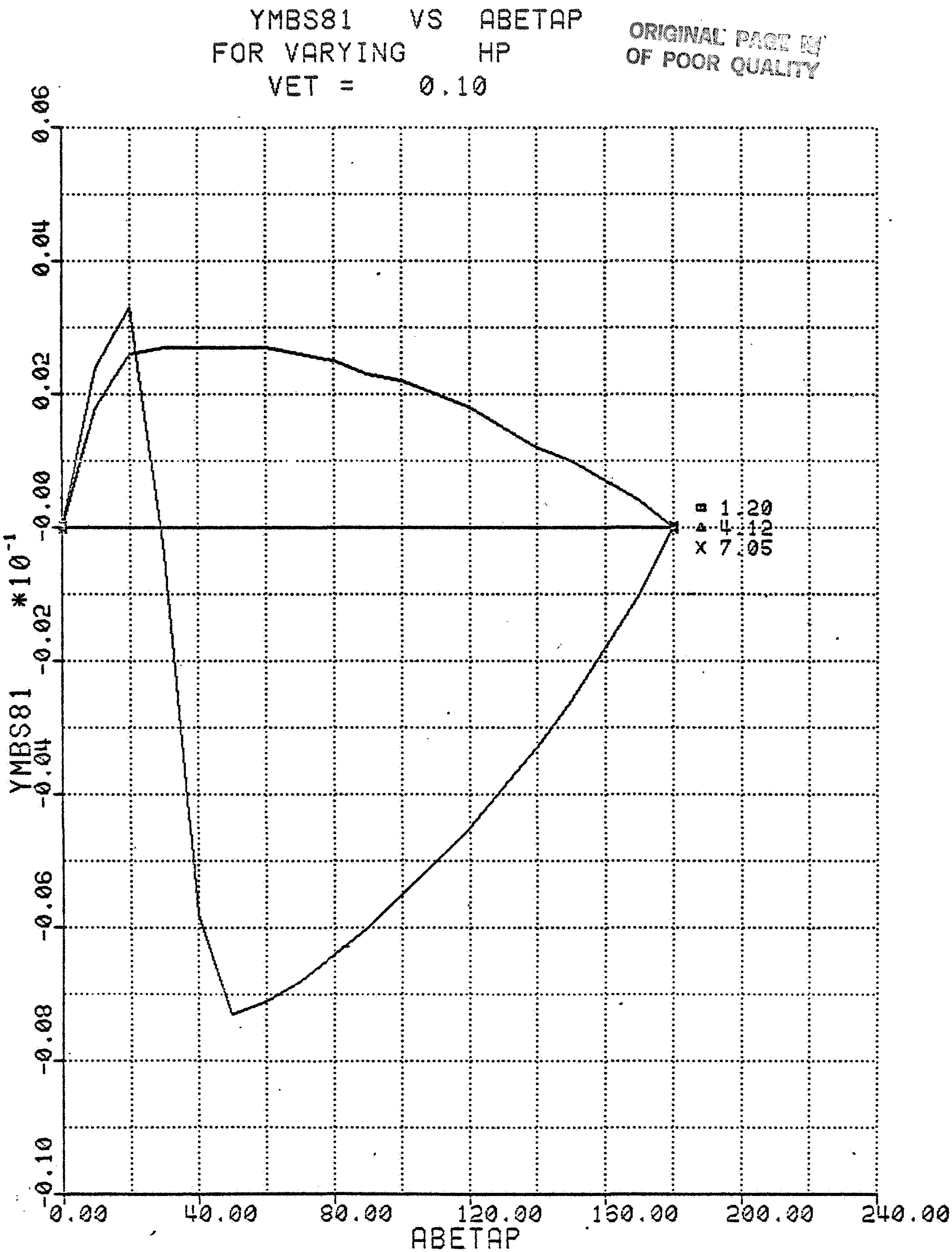

YMBS60 VS ABETAP
FOR VARYING HP
VET = 0.05
YMBS60 *10⁻¹
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
0.00
4.00
8.00
12.00
16.00
20.00
24.00
ABETAP
4.12
1.20
7.05

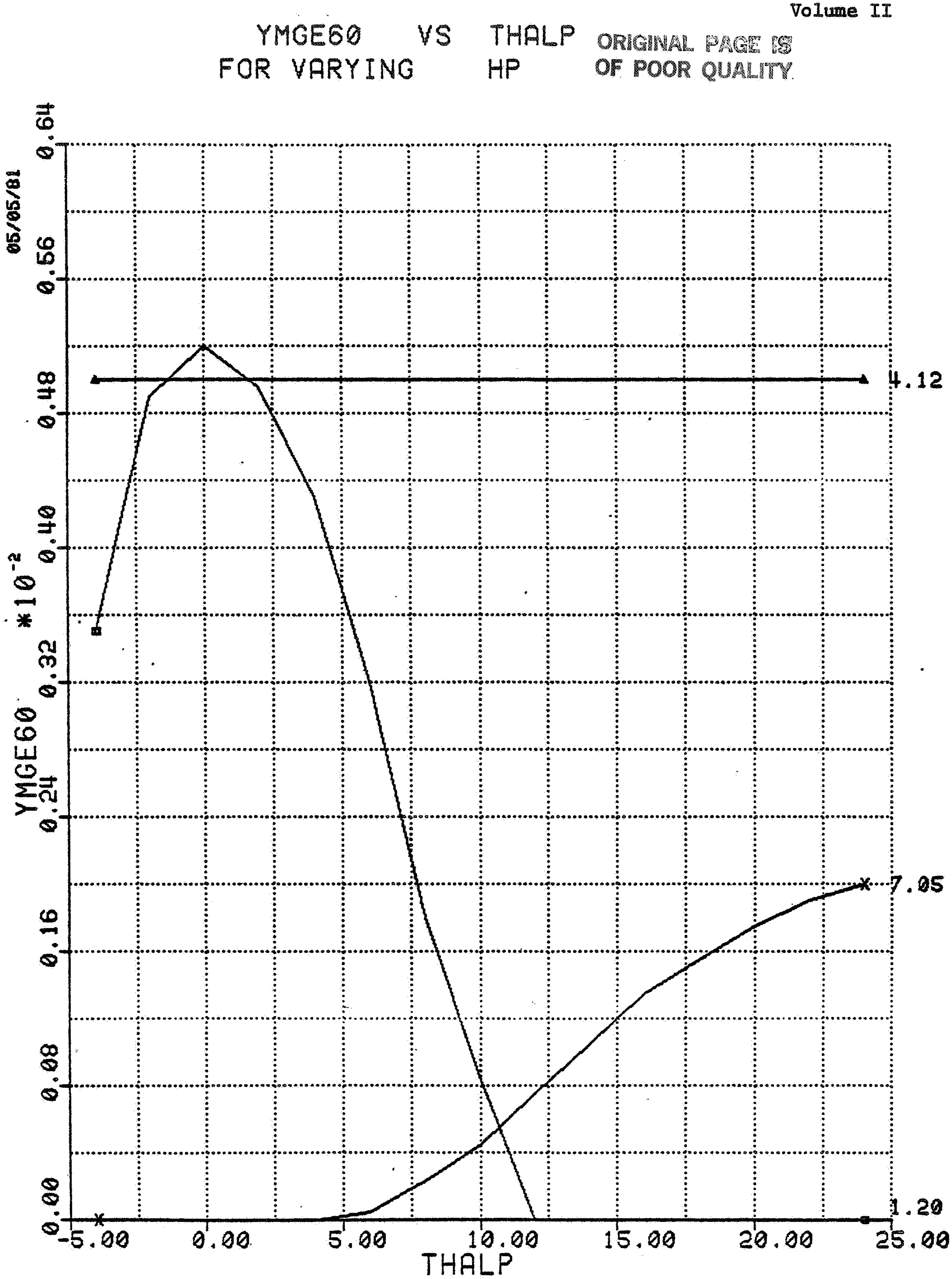

YMBS60 VS ABETAP
FOR VARYING HP
VET = 0.10
YMBS60 *10^{-1}
0.43
0.33
0.23
0.13
0.03
-0.07
-0.17
-0.27
-0.37
0.00
4.00
8.00
12.00
16.00
20.00
24.00
ABETAP
1.20
7.05
4.12

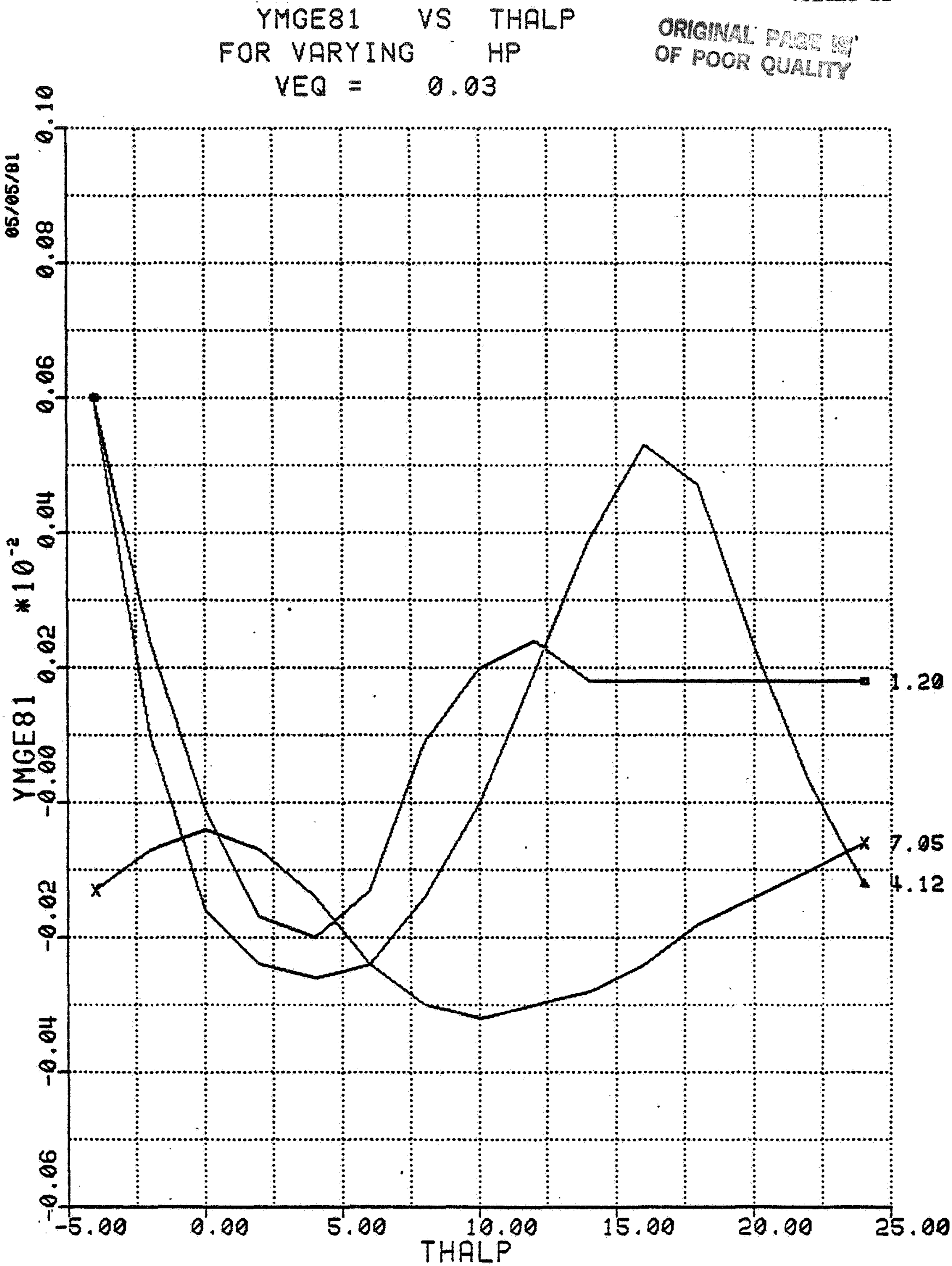

YMBS81 VS ABETAP
FOR VARYING HP
VET = 0.03
YMBS81 *10^-1
ABETAP
0.06
0.04
0.02
-0.00
-0.02
-0.04
-0.06
-0.08
-0.10
0.00
40.00
80.00
120.00
160.00
200.00
240.00
1.20
4.12
X 7.05

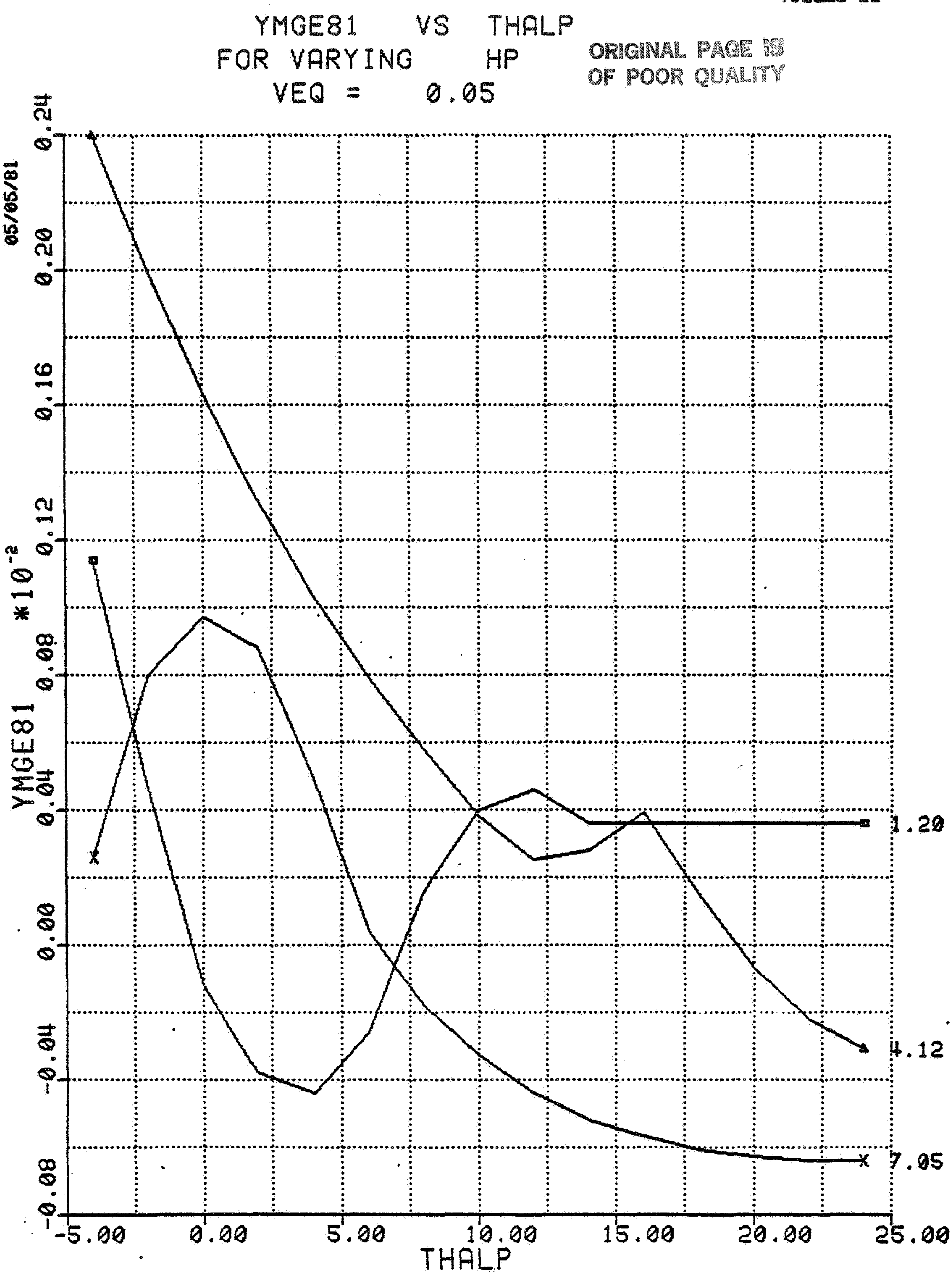

YMBS81 VS ABETAP
FOR VARYING HP
VET = 0.05
0.16
0.12
0.08
0.04
-0.00
-0.04
-0.08
-0.12
-0.16
YMBS81 *10^-1
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP
1.20
4.12
7.05

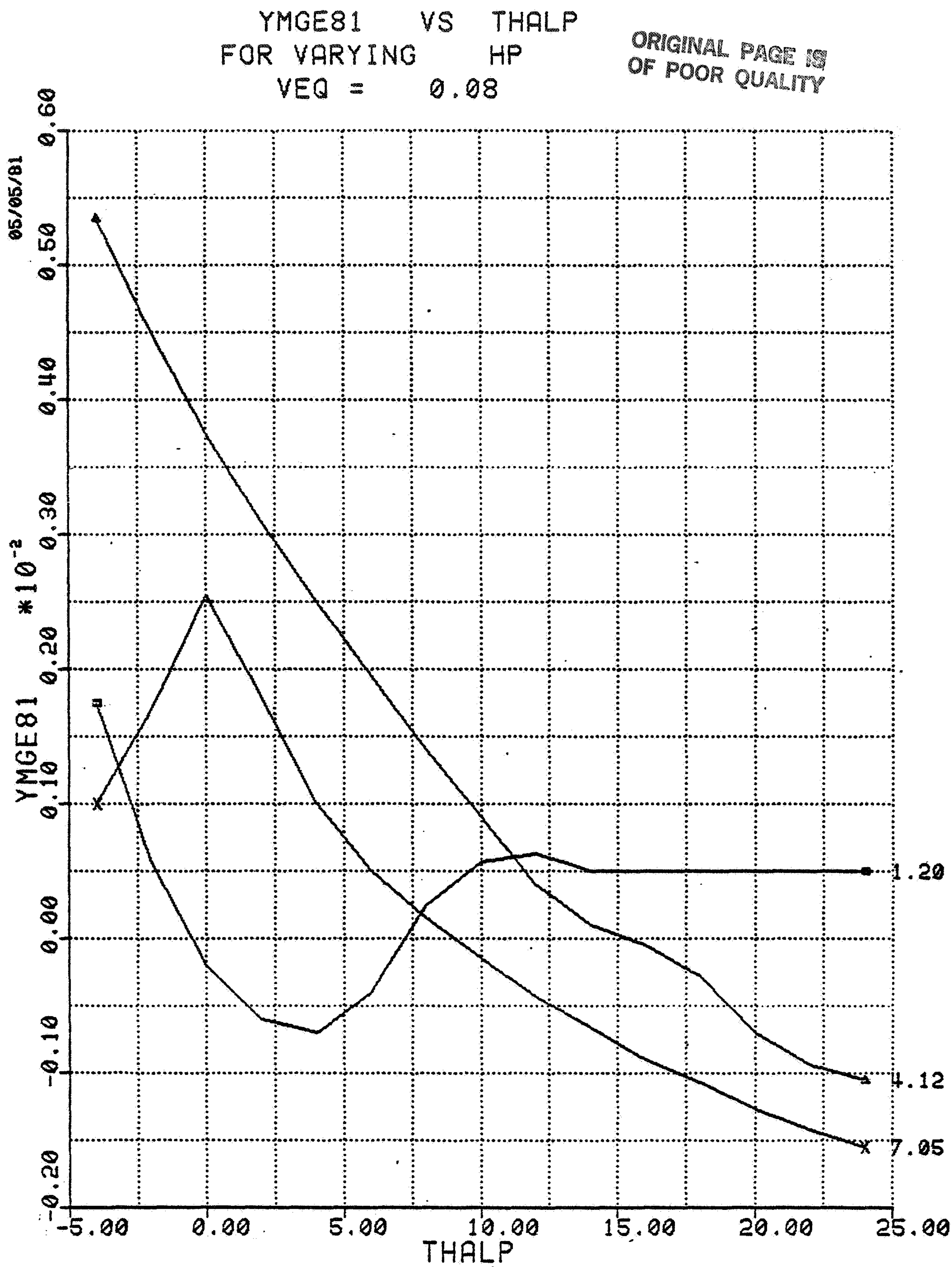

YMBS81 VS ABETAP
FOR VARYING HP
VET = 0.08
YMBS81
*10^-1
0.16
0.12
0.08
0.04
-0.00
-0.04
-0.08
-0.12
-0.16
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP
1.20
4.12
7.05

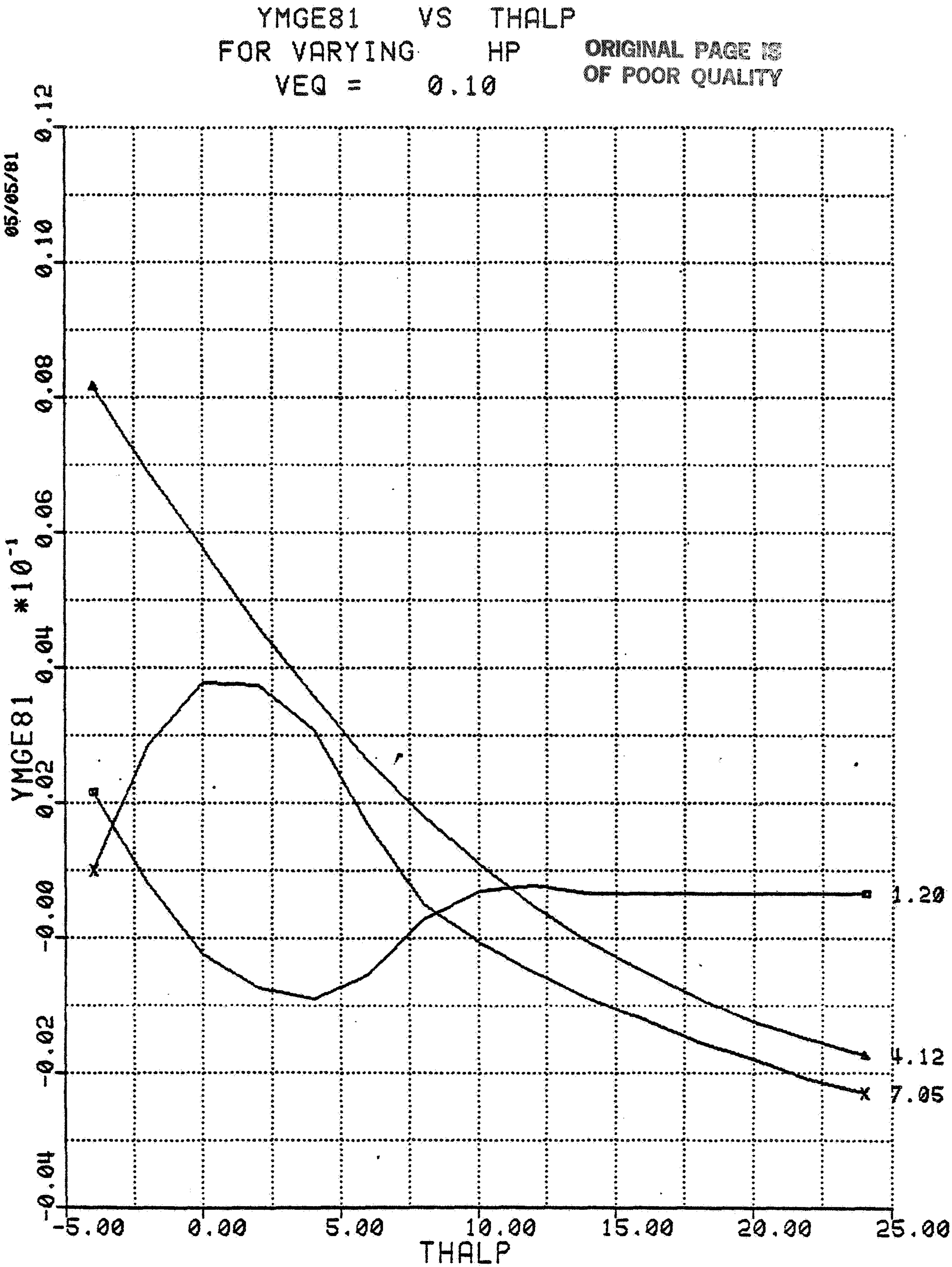

YMBS81 VS ABETAP
FOR VARYING HP
VET = 0.10
0.06
0.04
0.02
-0.00
-0.02
-0.04
-0.06
-0.08
-0.10
YMBS81 *10^-1
0.00
40.00
80.00
120.00
160.00
200.00
240.00
ABETAP
▫ 1.20
△ 4.12
X 7.05

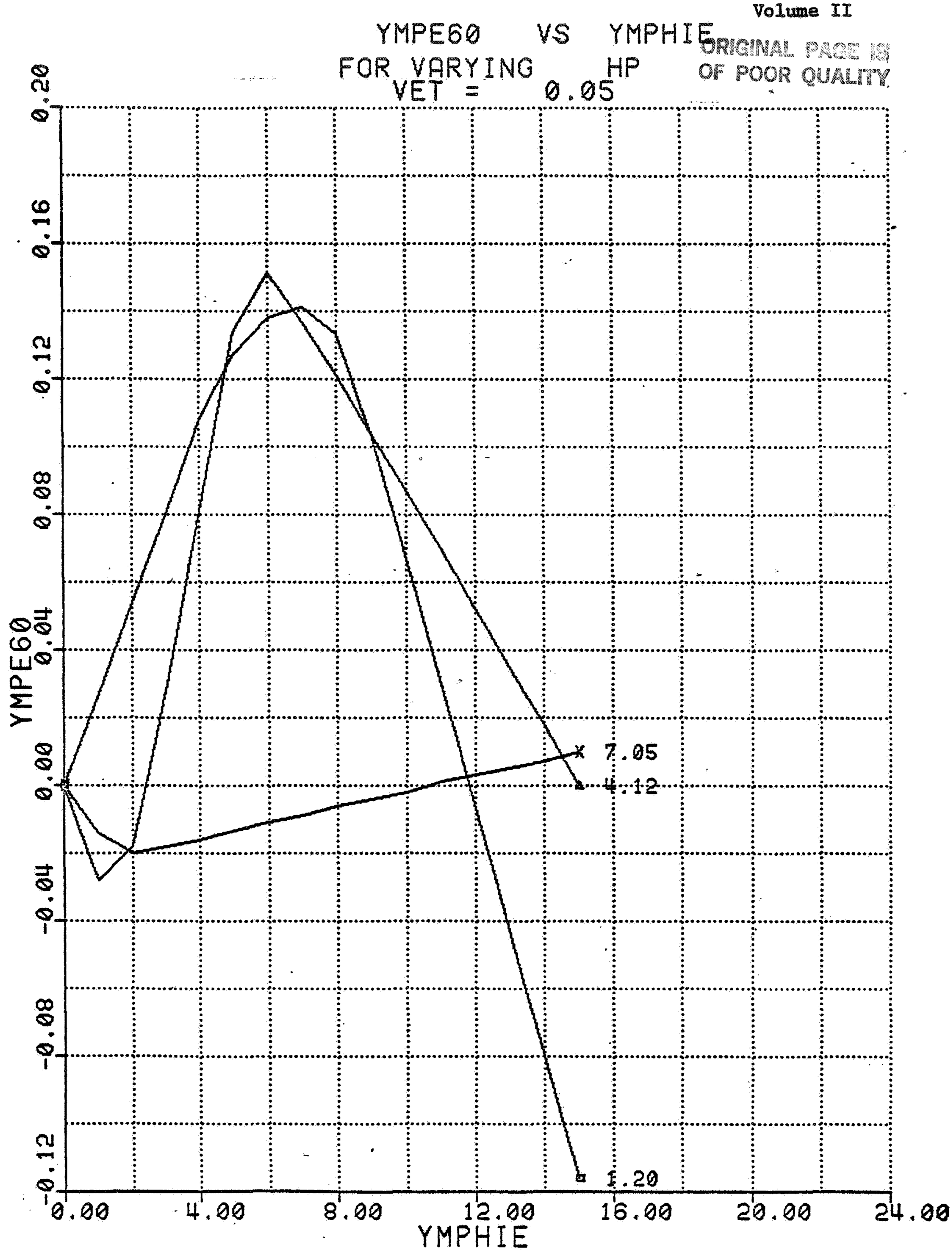

YMGE60 VS THALP
FOR VARYING HP
ORIGINAL PAGE IS
OF POOR QUALITY
05/05/81
YMGE60 *10^-2
0.64
0.56
0.48
0.40
0.32
0.24
0.16
0.08
0.00
4.12
7.05
1.20
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP

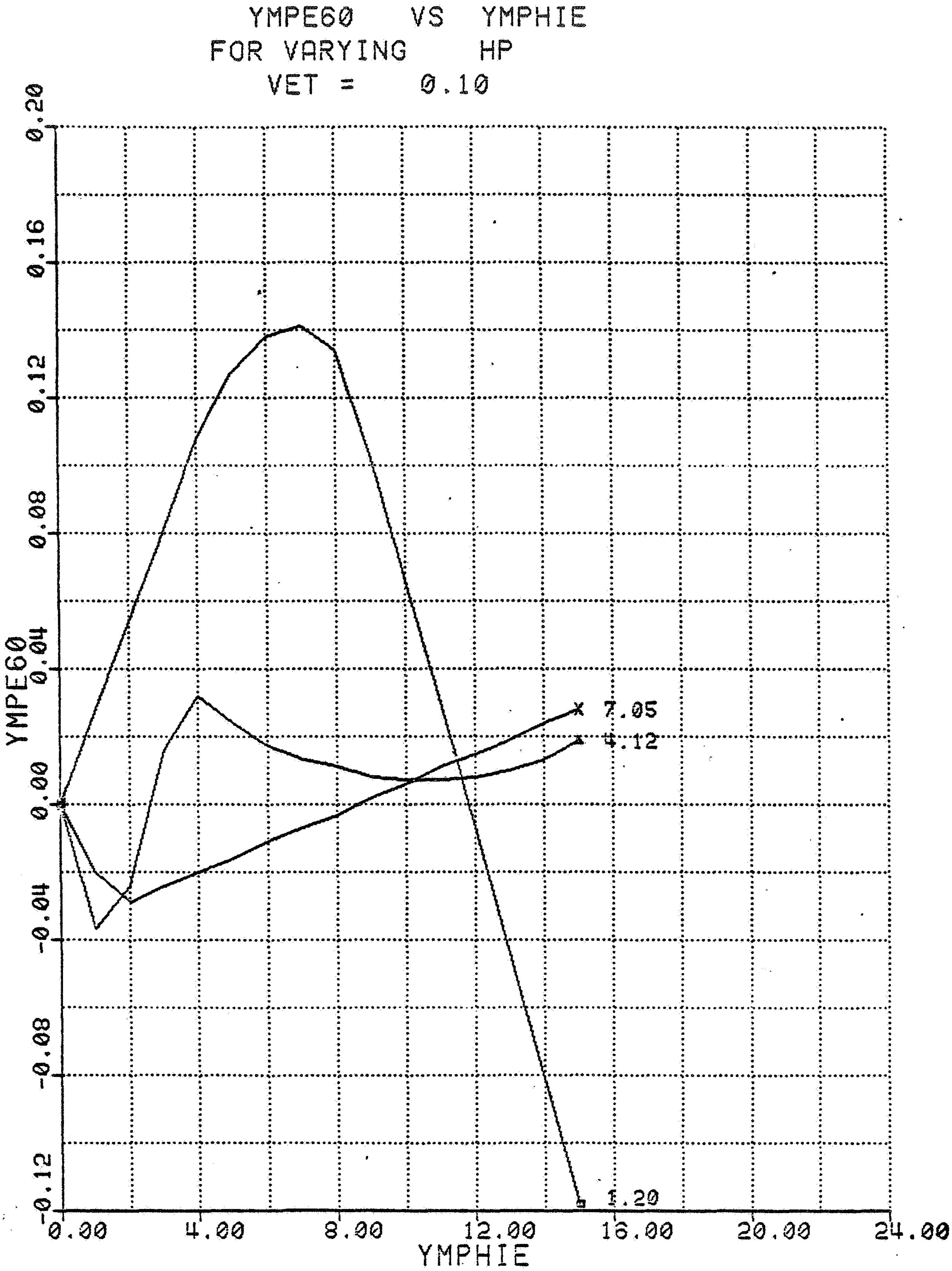

YMGE81 VS THALP
FOR VARYING HP
VEQ = 0.03
05/05/81
YMGE81 *10^-2
0.10
0.08
0.06
0.04
0.02
-0.00
-0.02
-0.04
-0.06
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
1.20
7.05
4.12

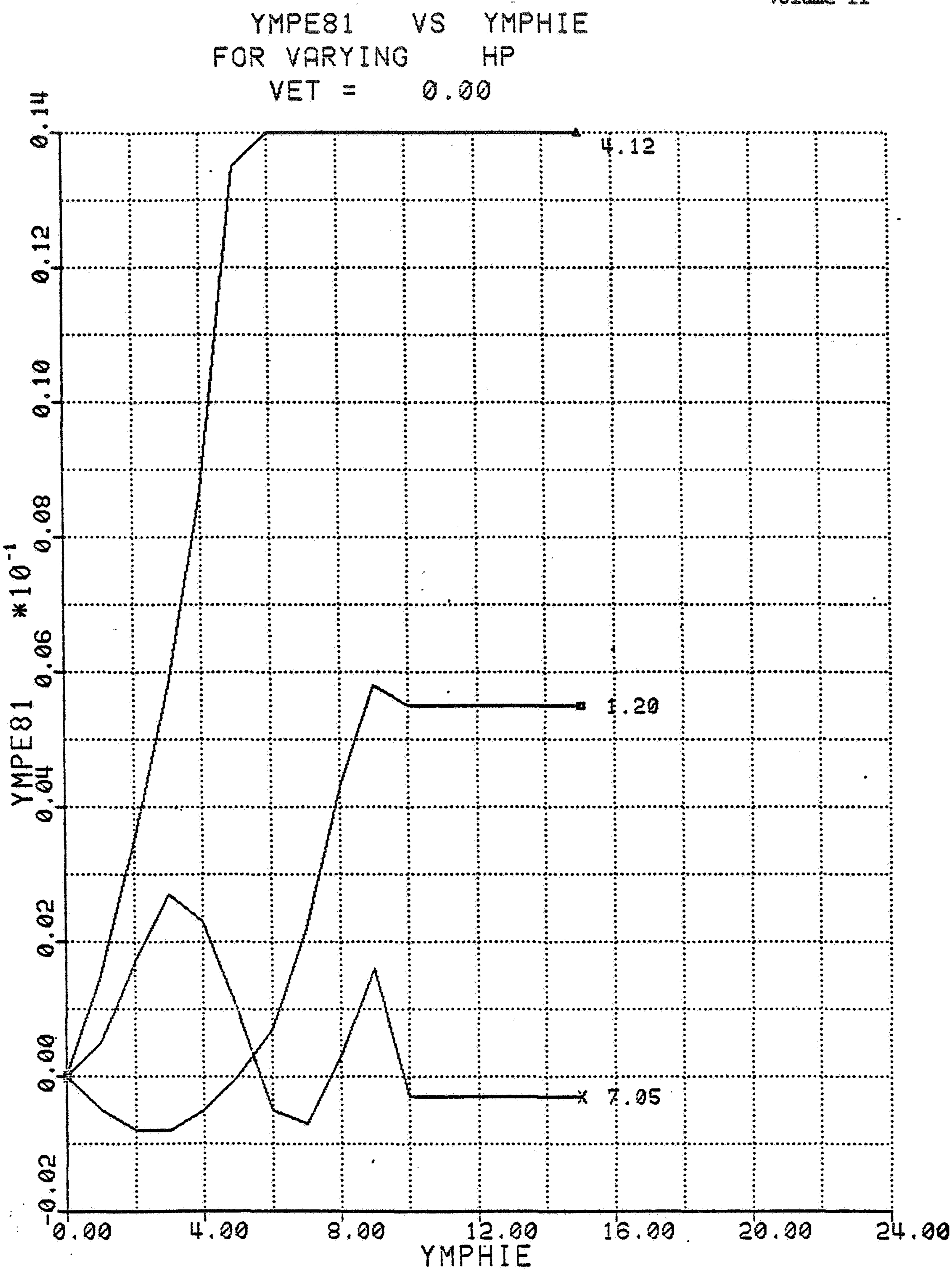

YMGE81 VS THALP
FOR VARYING HP
VEQ = 0.05
05/05/81
YMGE81 *10^-2
0.24
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
1.20
4.12
7.05


YMGE81 VS THALP
FOR VARYING HP
VEQ = 0.08
05/05/81
YMGE81 *10⁻²
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
1.20
4.12
7.05

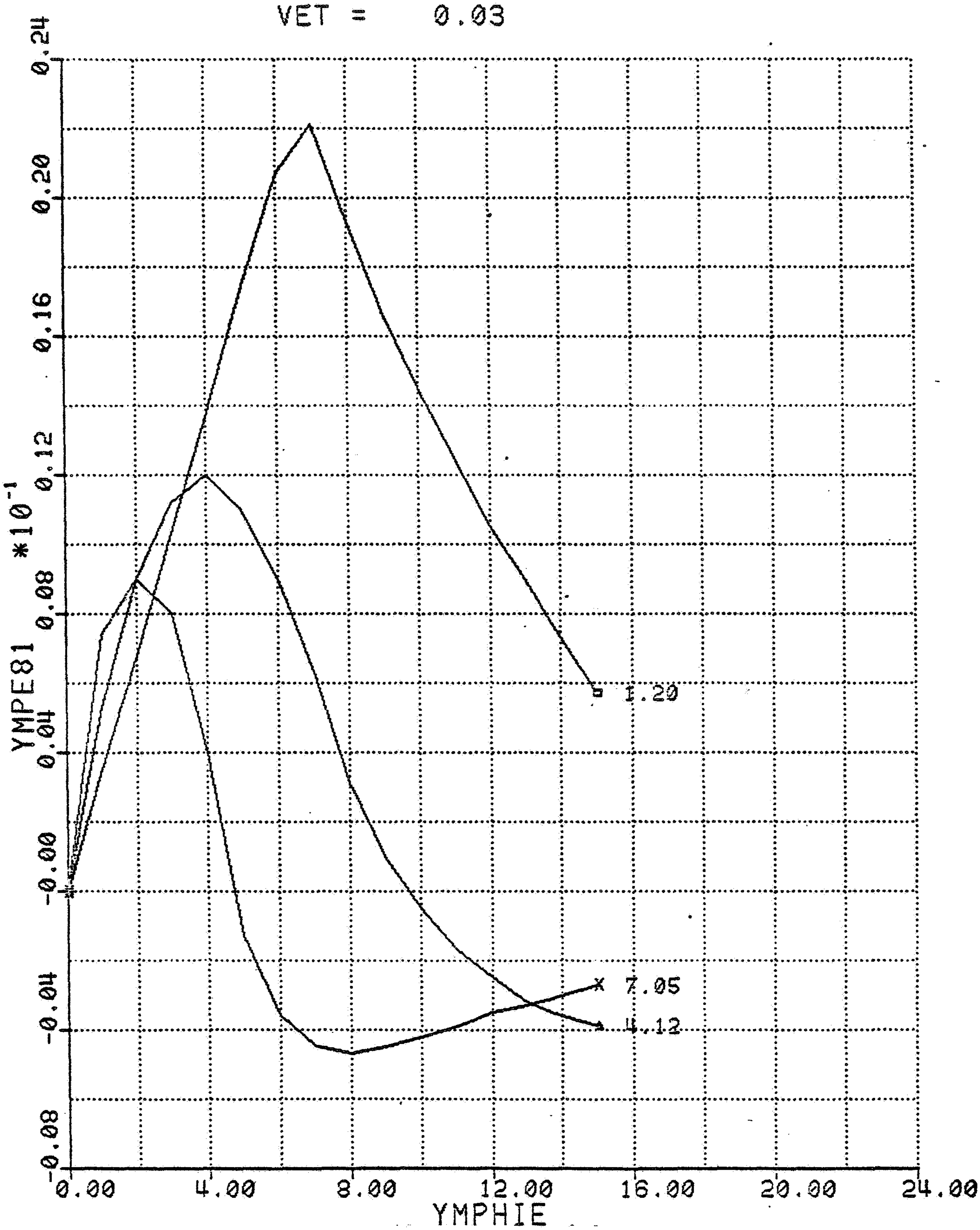

YMGE81 VS THALP
FOR VARYING HP
VEQ = 0.10
05/05/81
YMGE81 *10⁻¹
0.12
0.10
0.08
0.06
0.04
0.02
-0.00
-0.02
-0.04
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
1.20
4.12
7.05


YMPE60 VS YMPHIE
FOR VARYING HP
VET = 0.05
YMPE60
YMPHIE
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
0.00
4.00
8.00
12.00
16.00
20.00
24.00
7.05
4.12
1.20

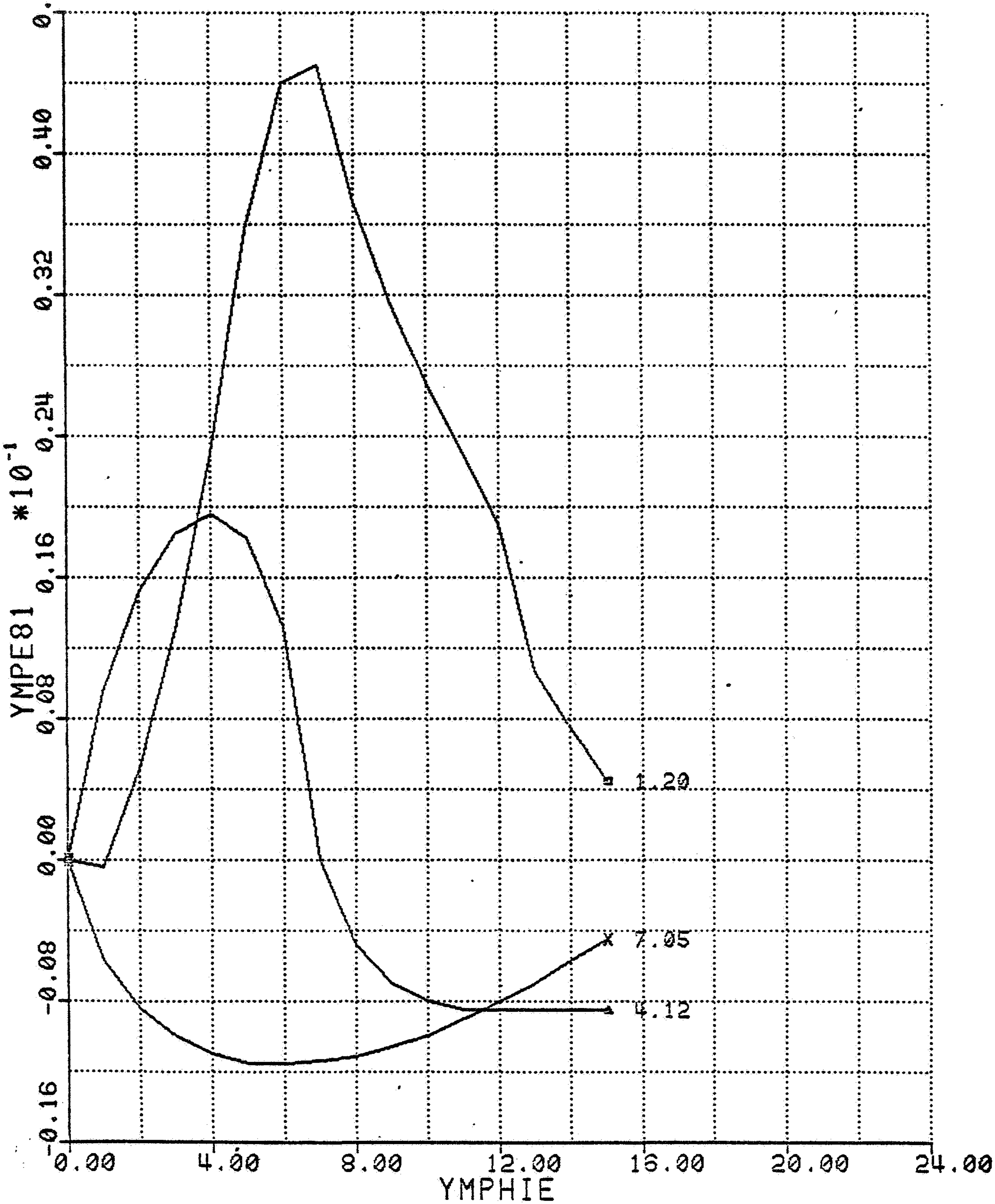

YMPE60 VS YMPHIE
FOR VARYING HP
VET = 0.10
YMPE60
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
7.05
4.12
1.20
0.00
4.00
8.00
12.00
16.00
20.00
24.00
YMPHIE

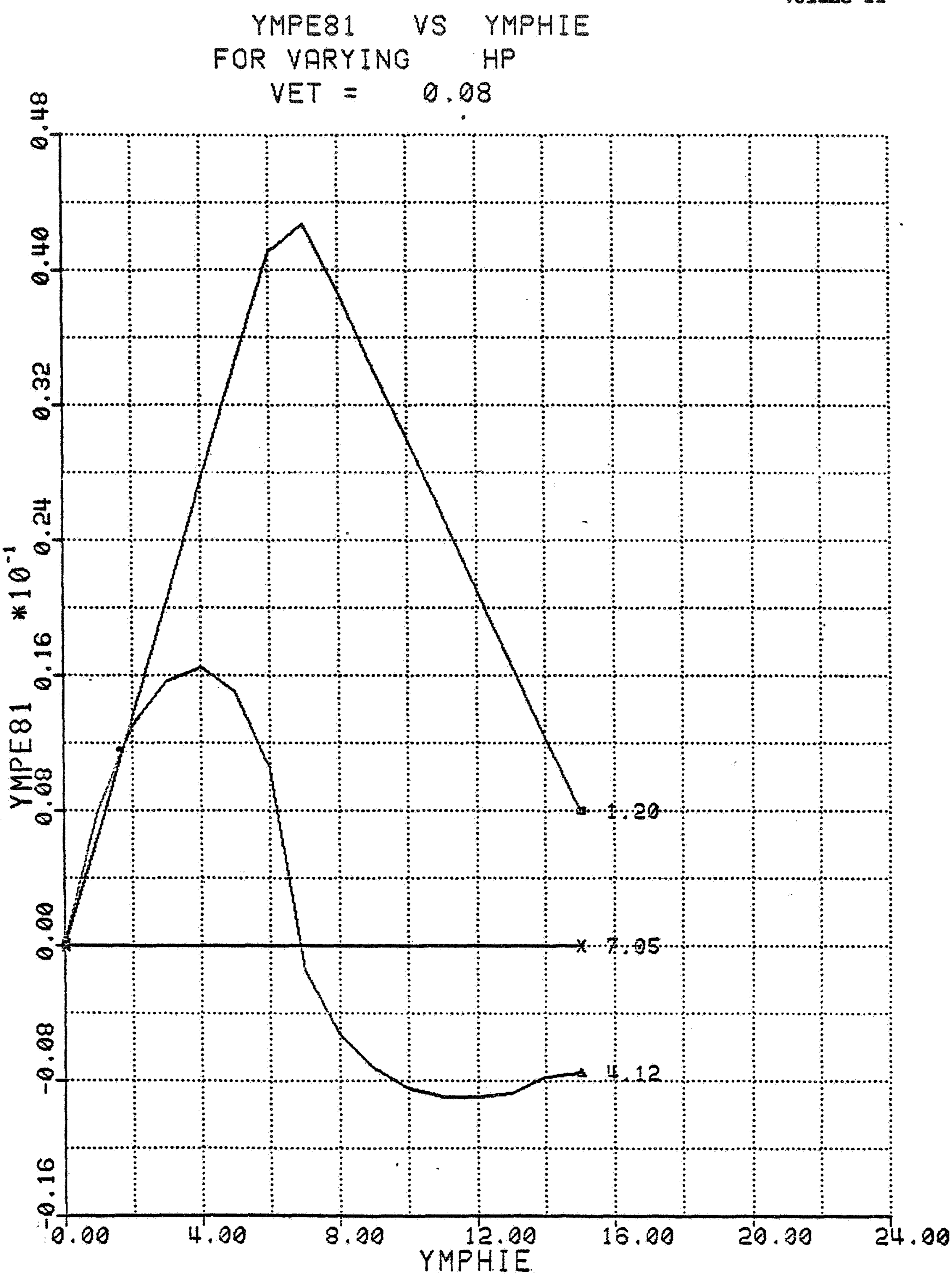

YMPE81 VS YMPHIE
FOR VARYING HP
VET = 0.00
YMPE81 *10^{-1}
YMPHIE
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
0.00
4.00
8.00
12.00
16.00
20.00
24.00
4.12
1.20
7.05

YMPE81 VS YMPHIE
FOR VARYING HP
VET = 0.03

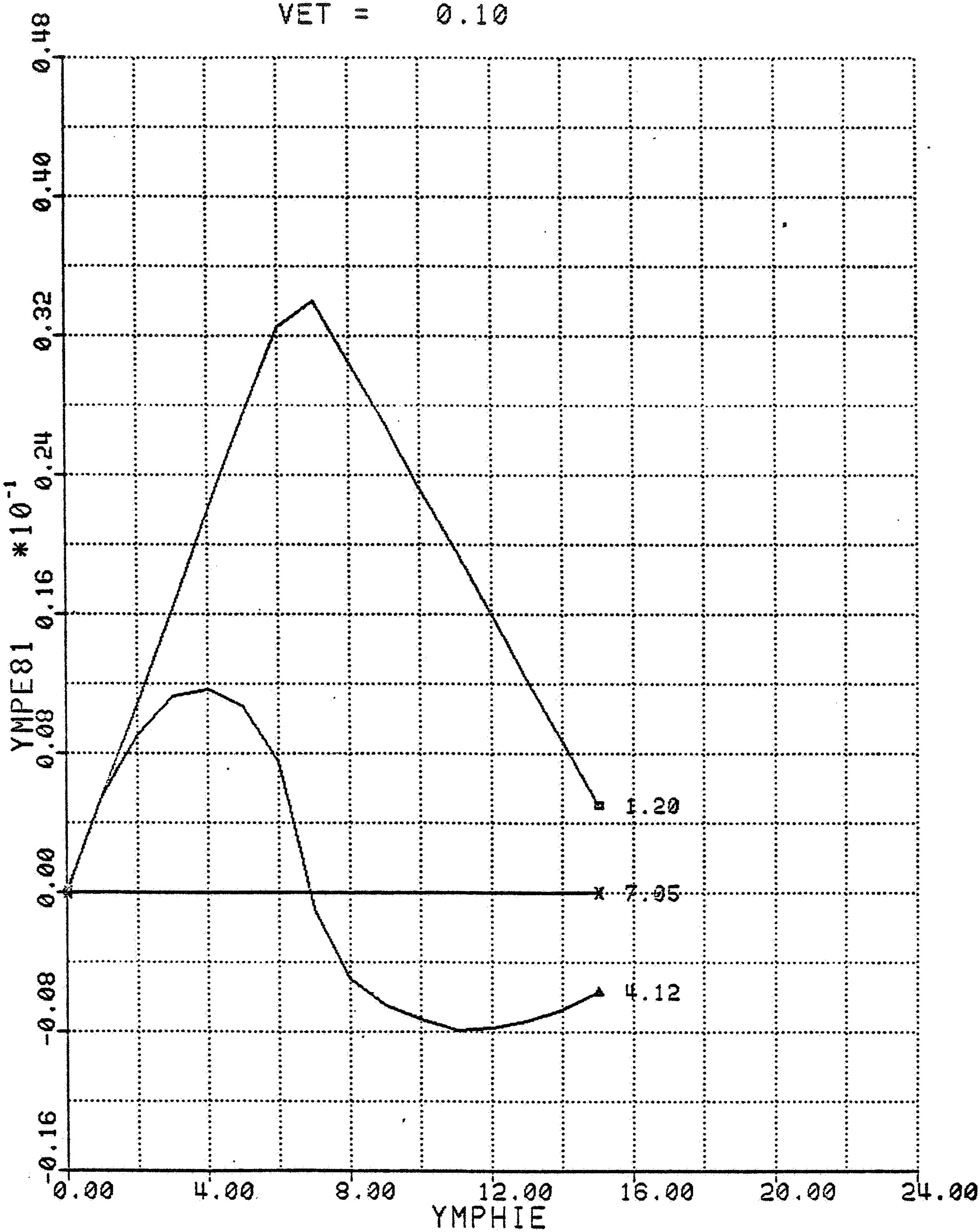


YMPE81 VS YMPHIE
FOR VARYING HP
VET = 0.05




YMPE81 VS YMPHIE
FOR VARYING HP
VET = 0.08
YMPE81 *10^-1
YMPHIE
0.48
0.40
0.32
0.24
0.16
0.08
0.00
-0.08
-0.16
0.00
4.00
8.00
12.00
16.00
20.00
24.00
1.20
7.05
4.12

YMPE81 VS YMPHIE
FOR VARYING HP
VET = 0.10



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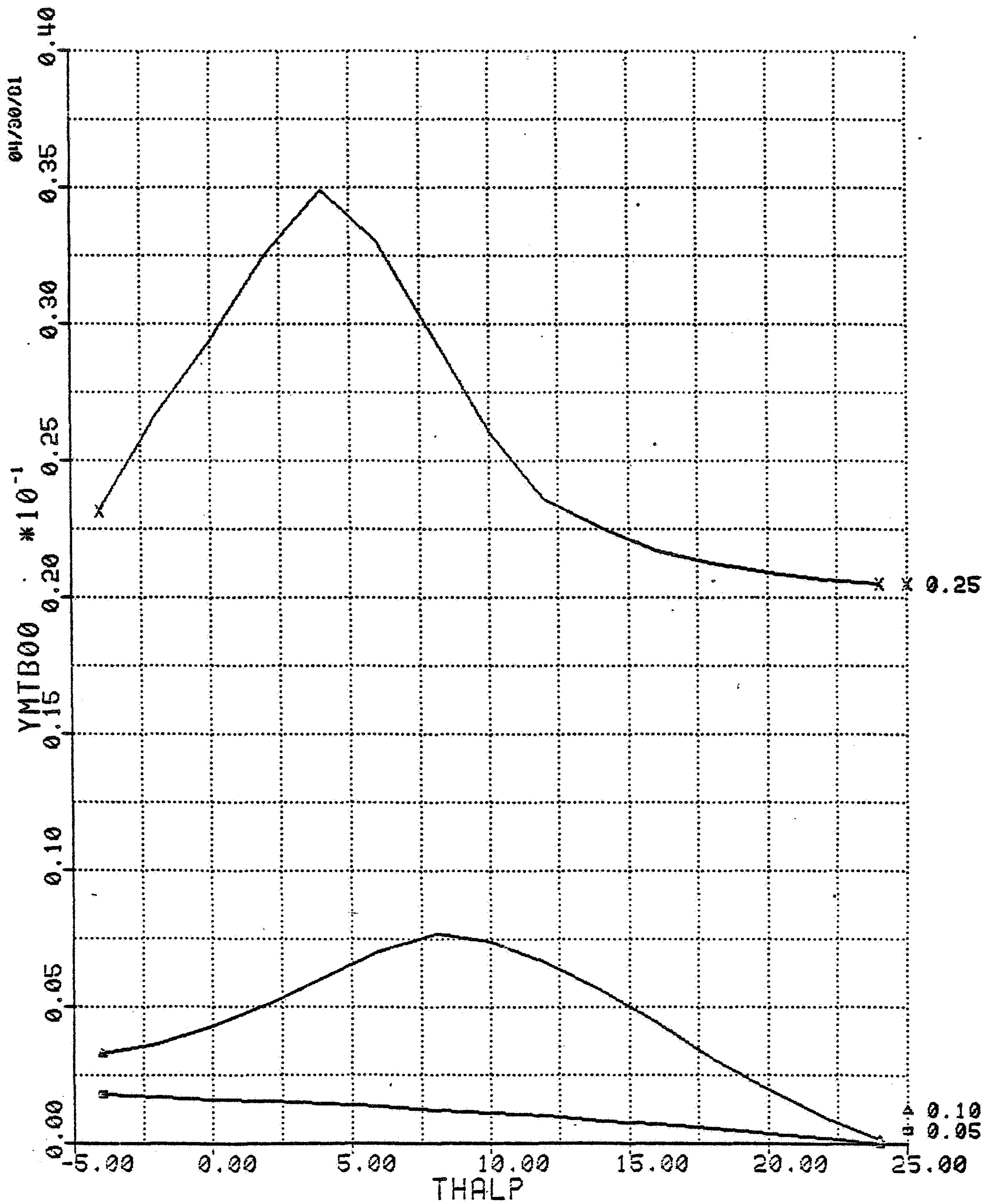
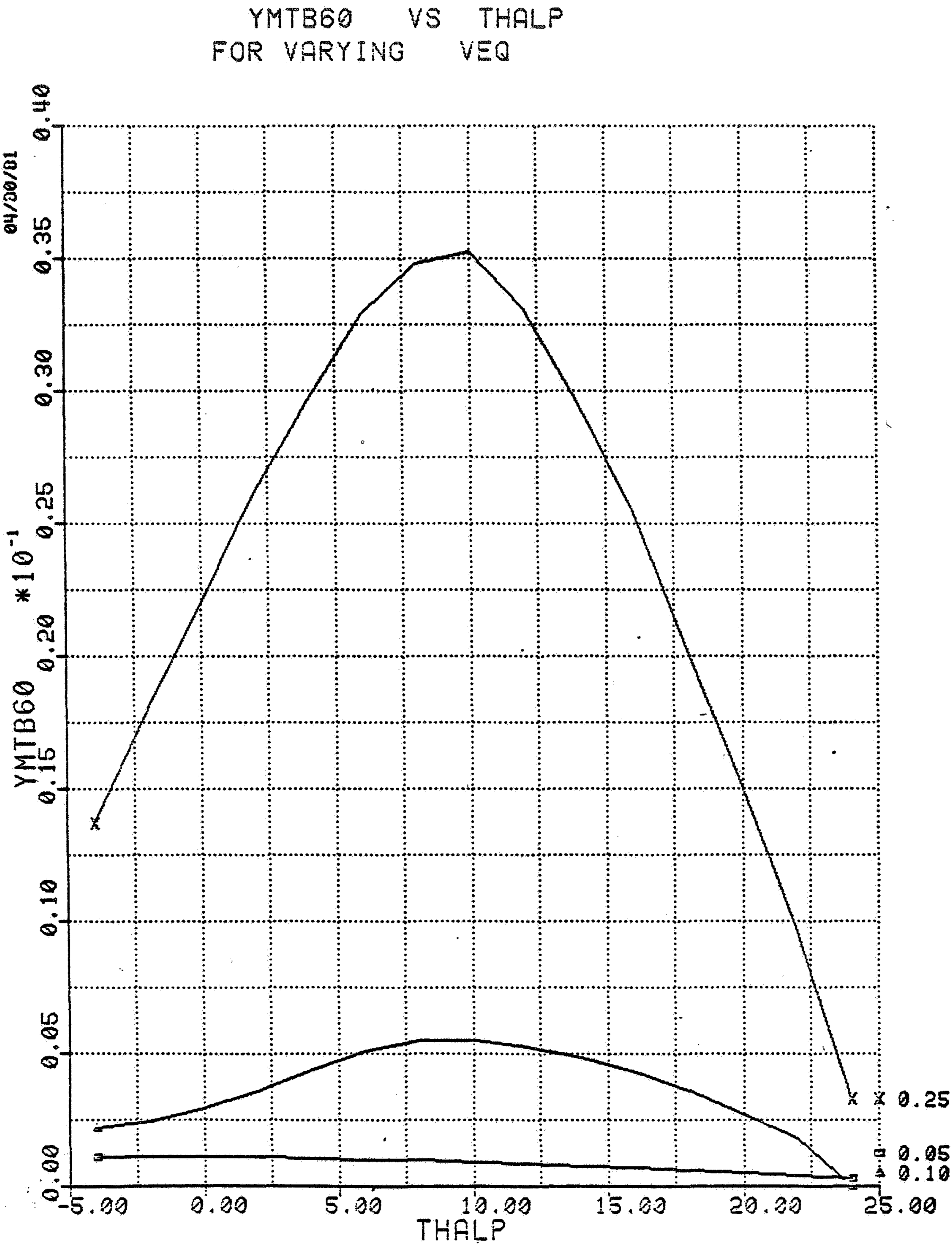
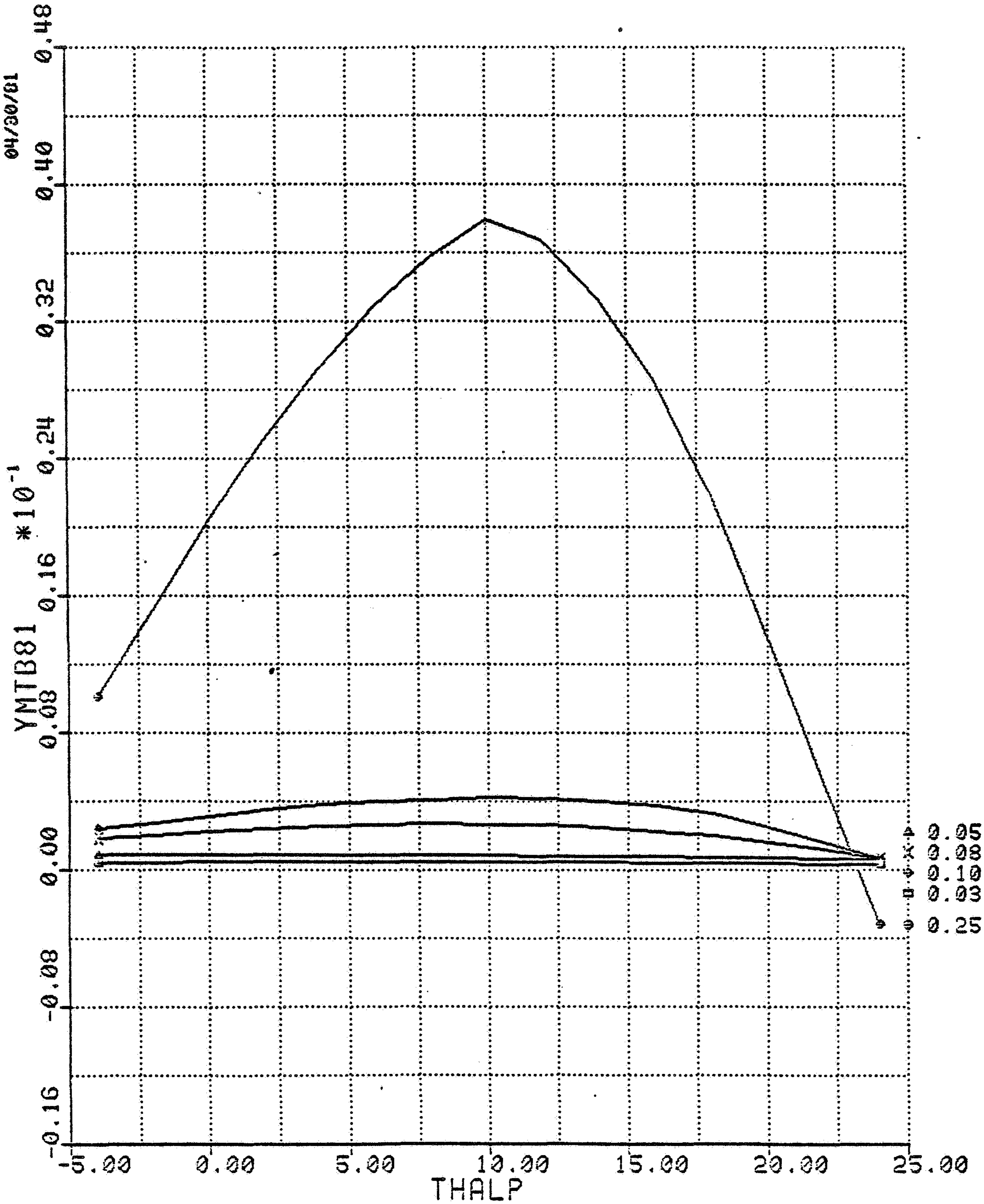
YMTB00 VS THALP
FOR VARYING VEQ




YMTB60 VS THALP
FOR VARYING VEQ
04/30/81
YMTB60 *10^-1
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
THALP
X 0.25
0.05
0.10

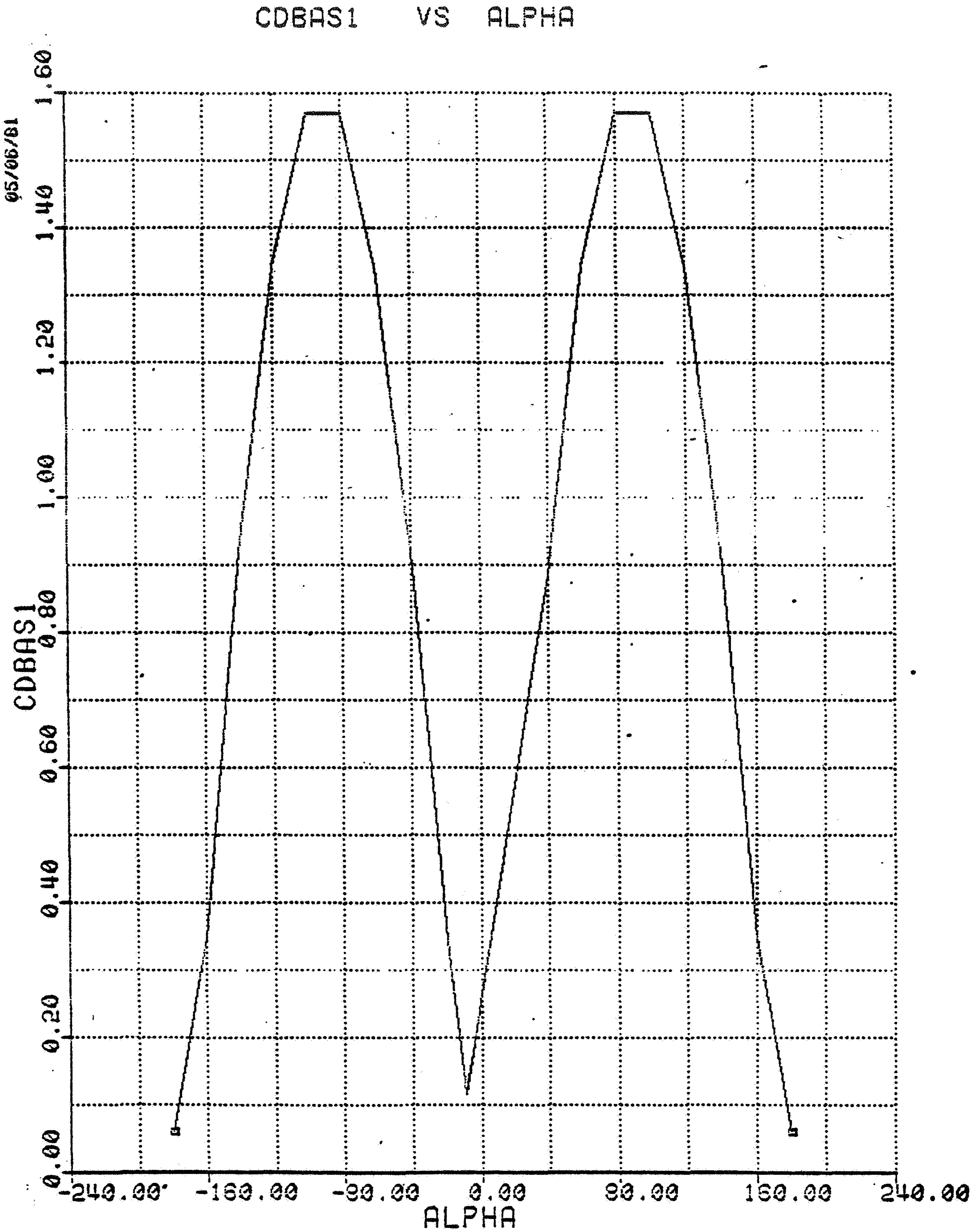
YMTB81 VS THALP
FOR VARYING VEQ



INDEX TO HIGH SPEED AERODYNAMIC PLOTS

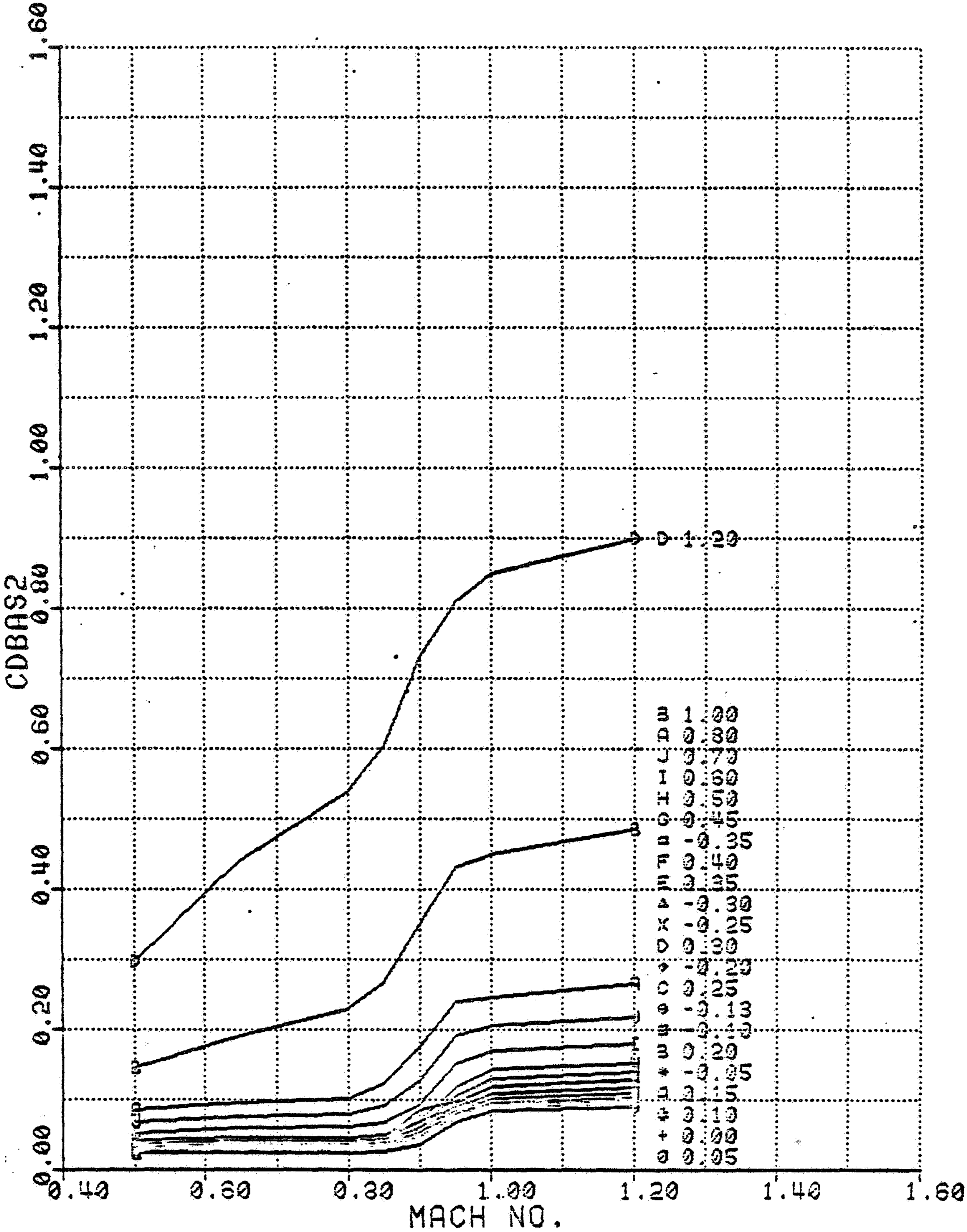
INDEX TO HIGH SPEED AERODYNAMIC PLOTS (Cont'd)

INDEX TO HIGH SPEED AERODYNAMIC PLOTS (Cont'd)

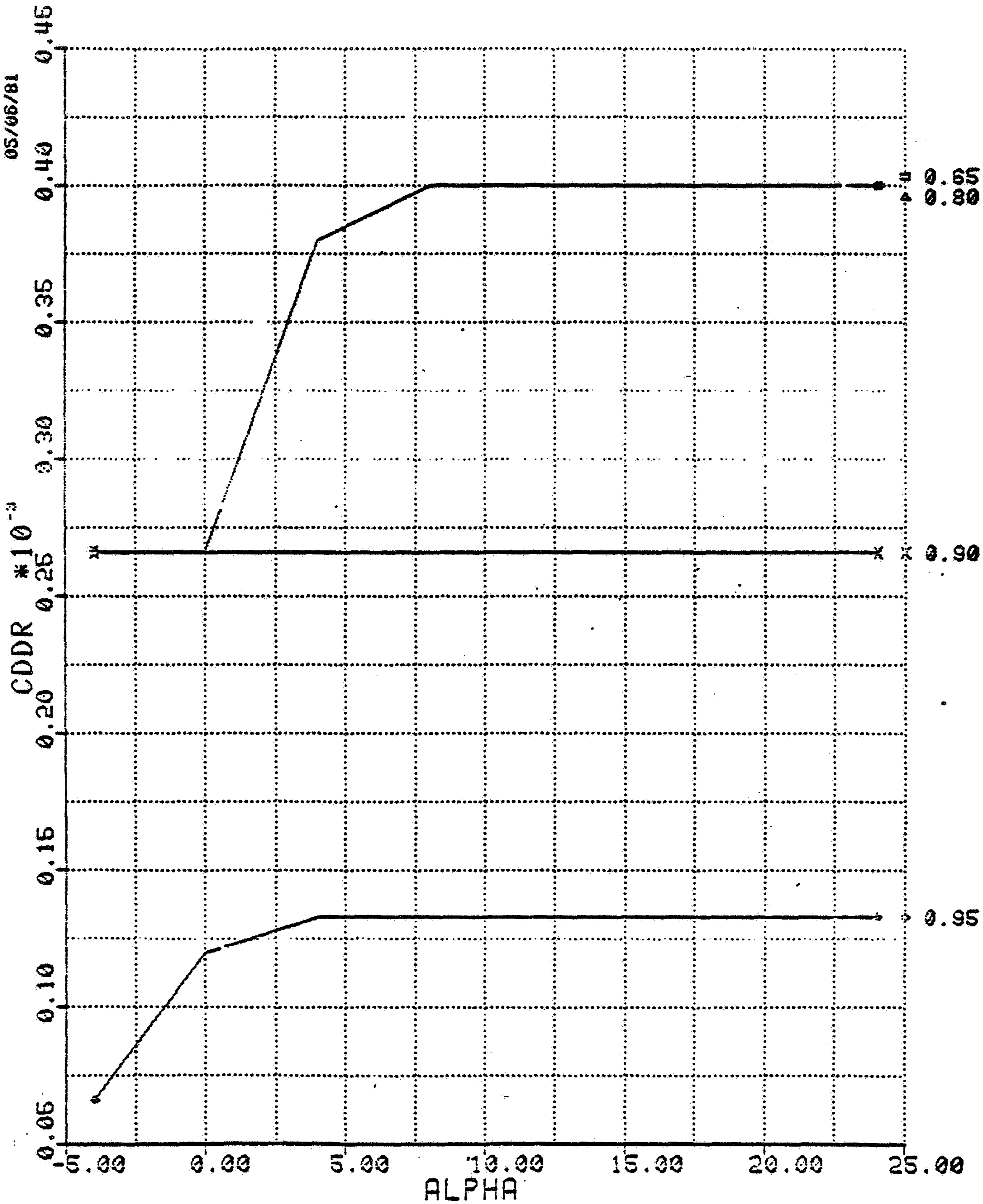

CDBAS1 VS ALPHA
05/06/81
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
CDBAS1
-240.00
-160.00
-80.00
0.00
80.00
160.00
240.00
ALPHA

ORIGINAL PAGE IS
OF POOR QUALITY

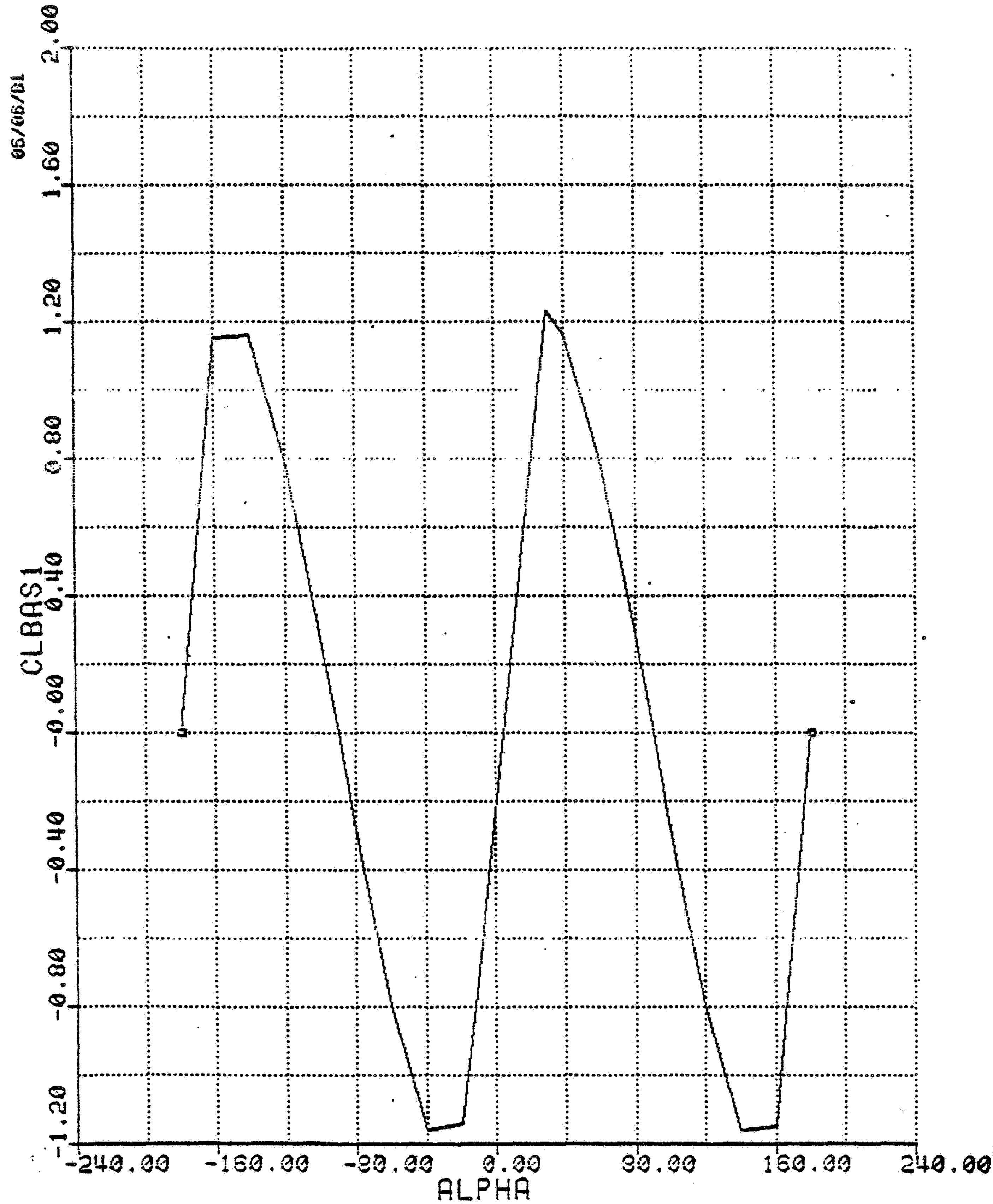
CDBAS2 VS MACH NO.
FOR VARYING CLBASE



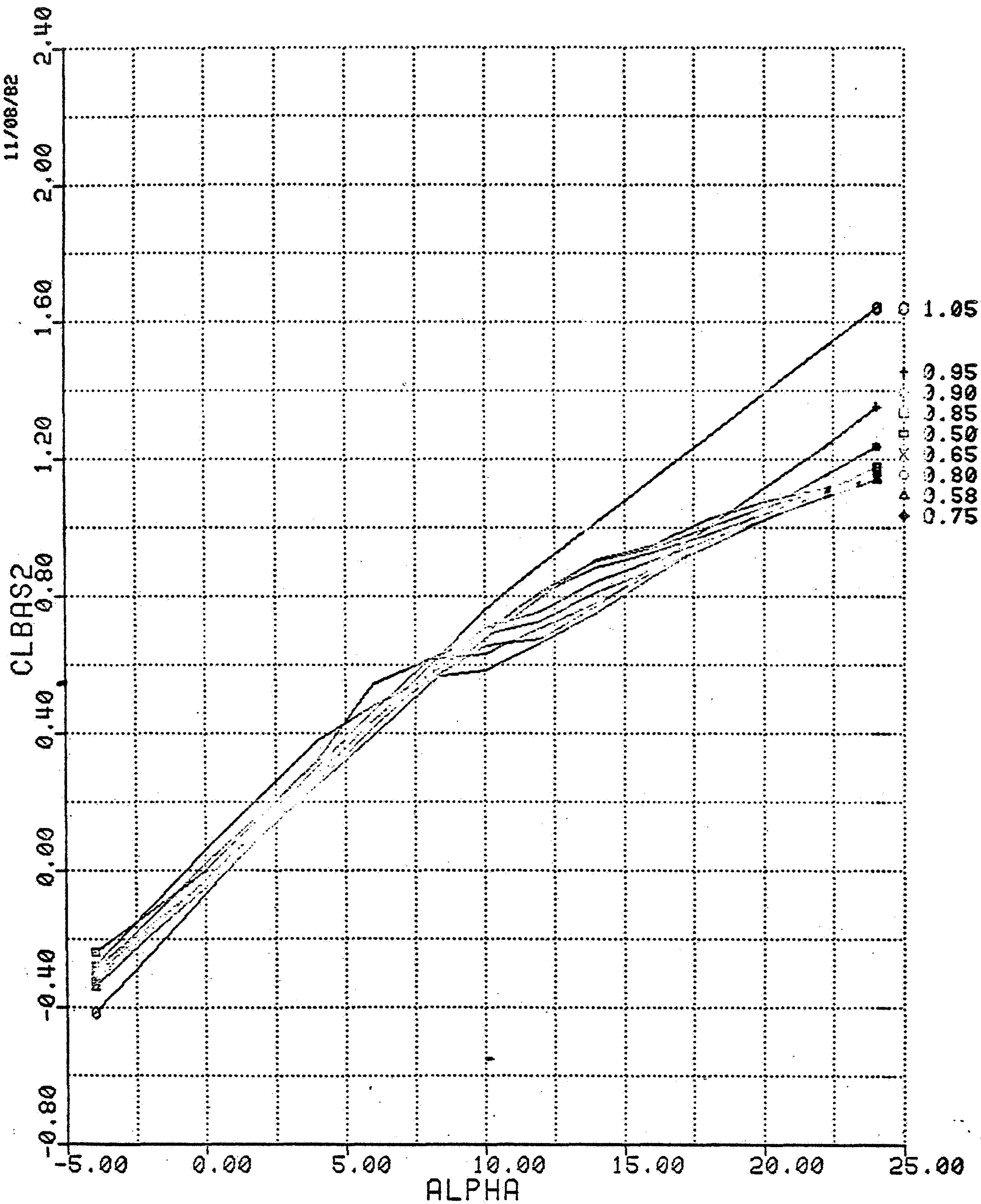
CDDR VS ALPHA
FOR VARYING MACH NO.



CLBAS1 VS ALPHA



CLBAS2 VS ALPHA
FOR VARYING RMACH



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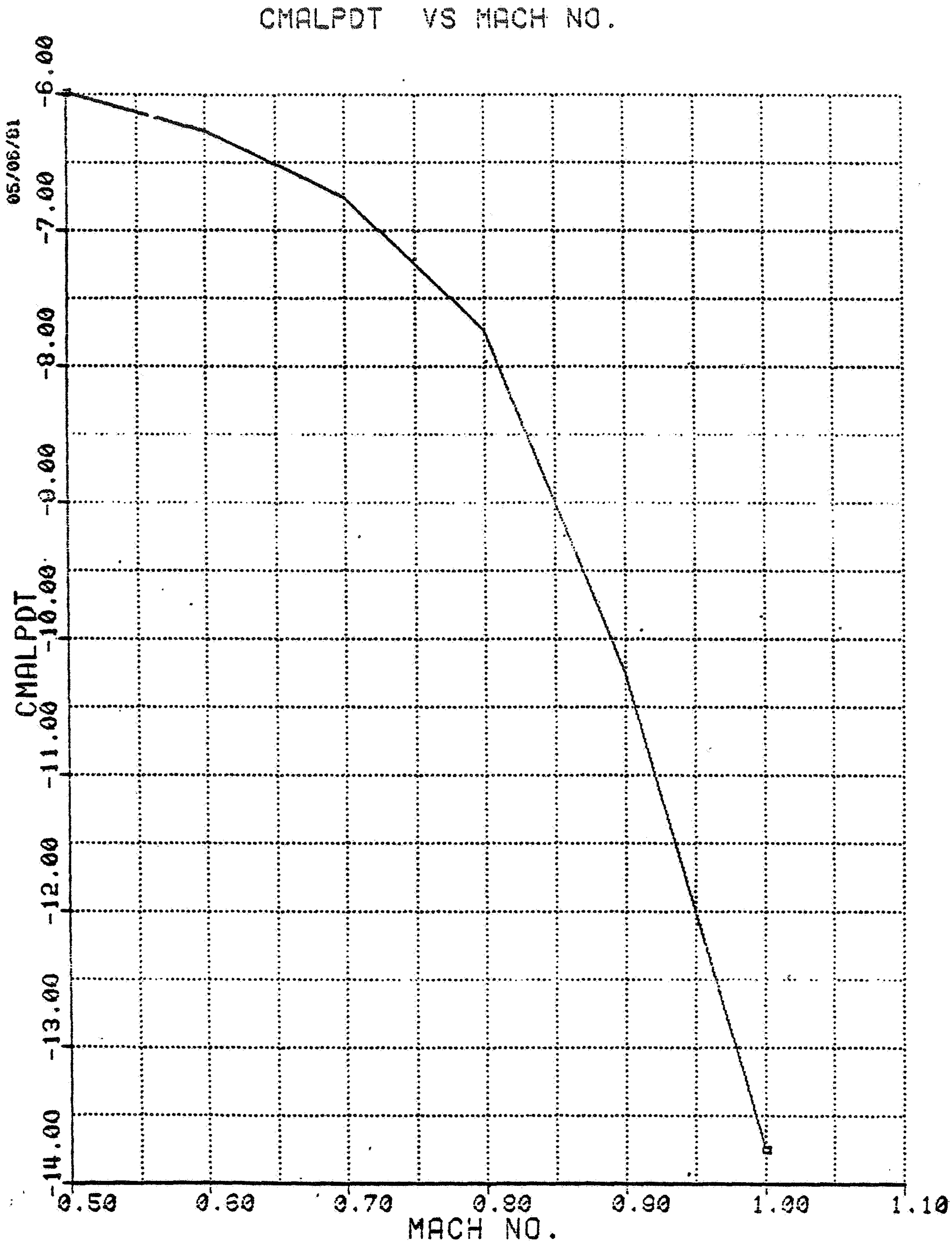
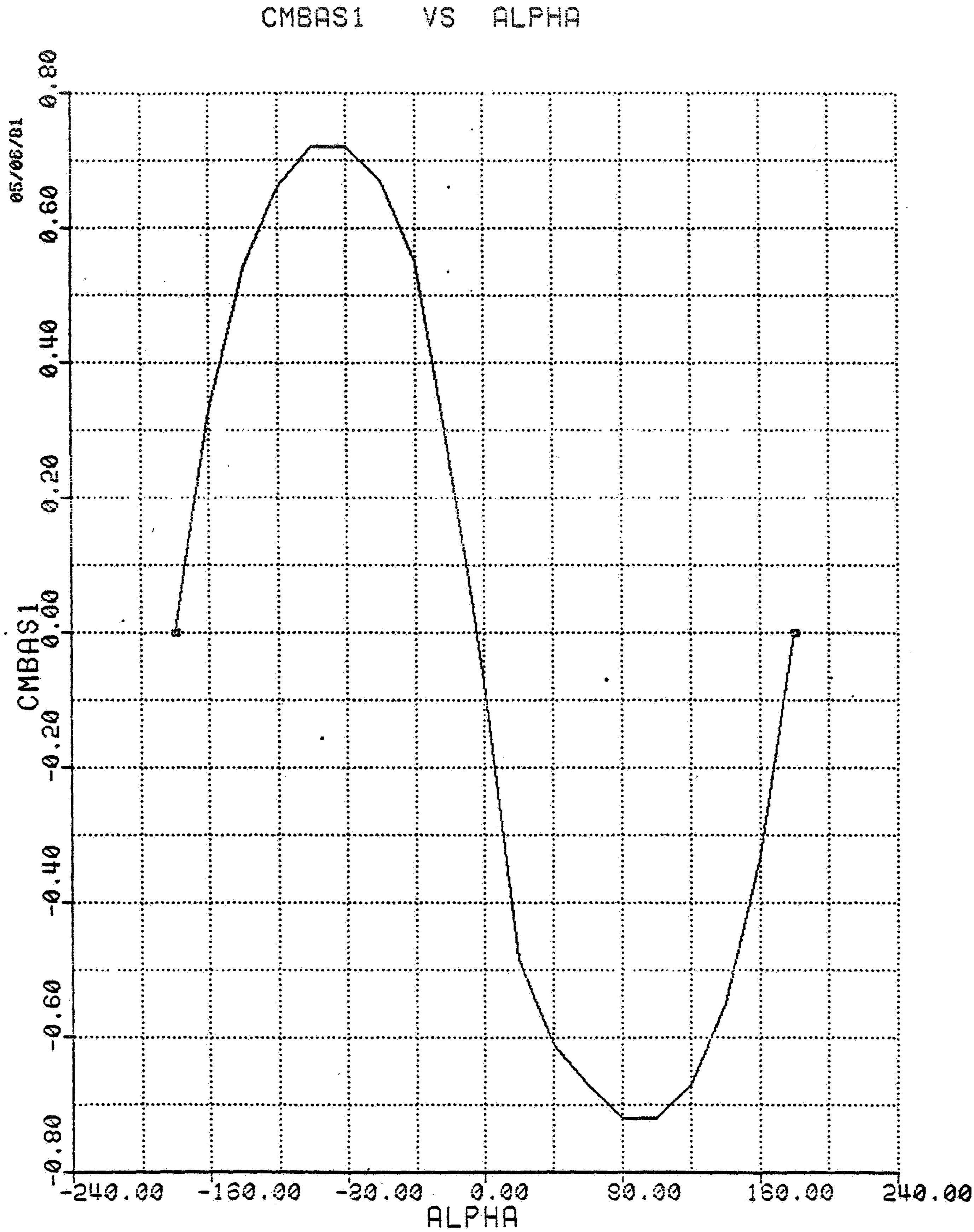
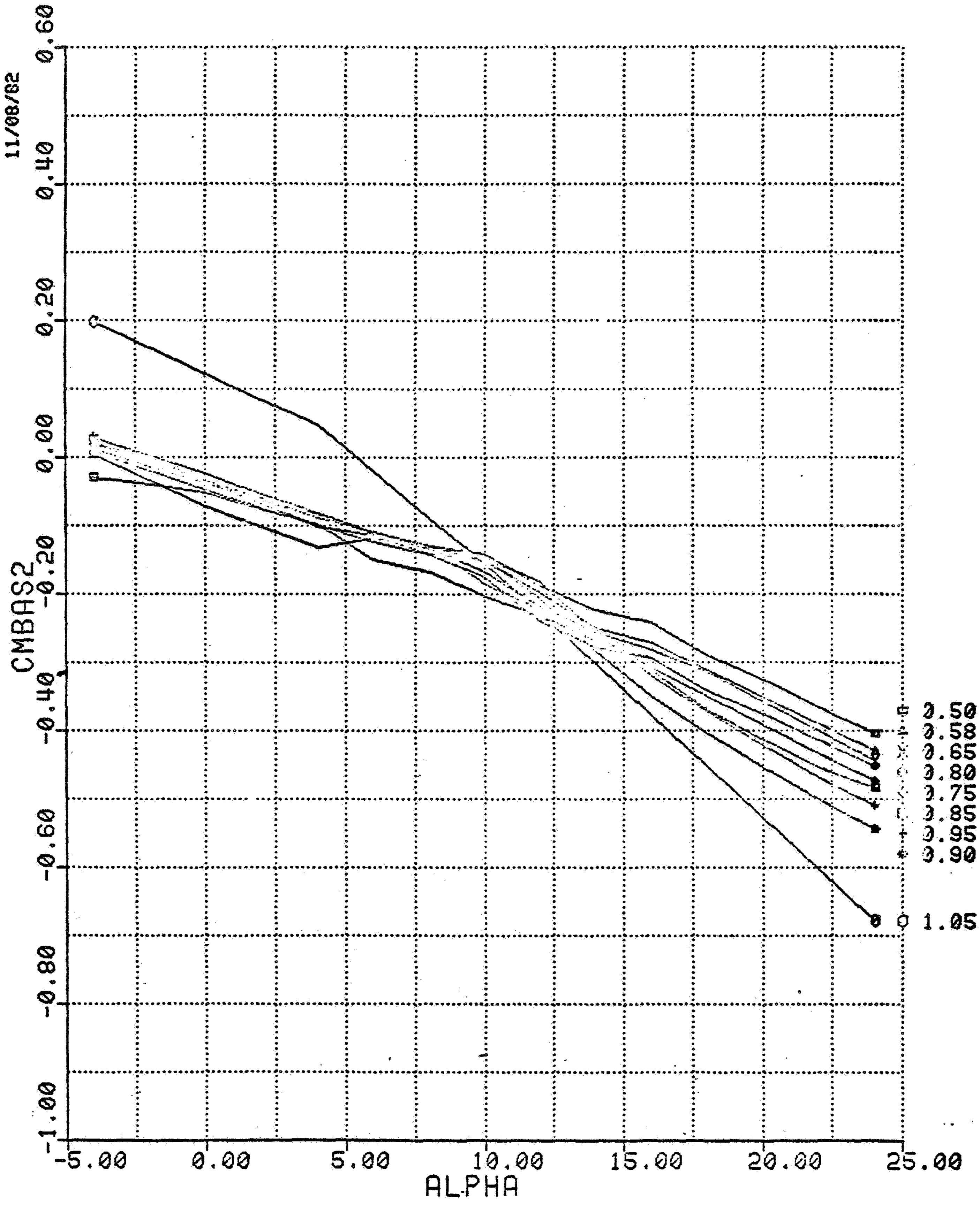
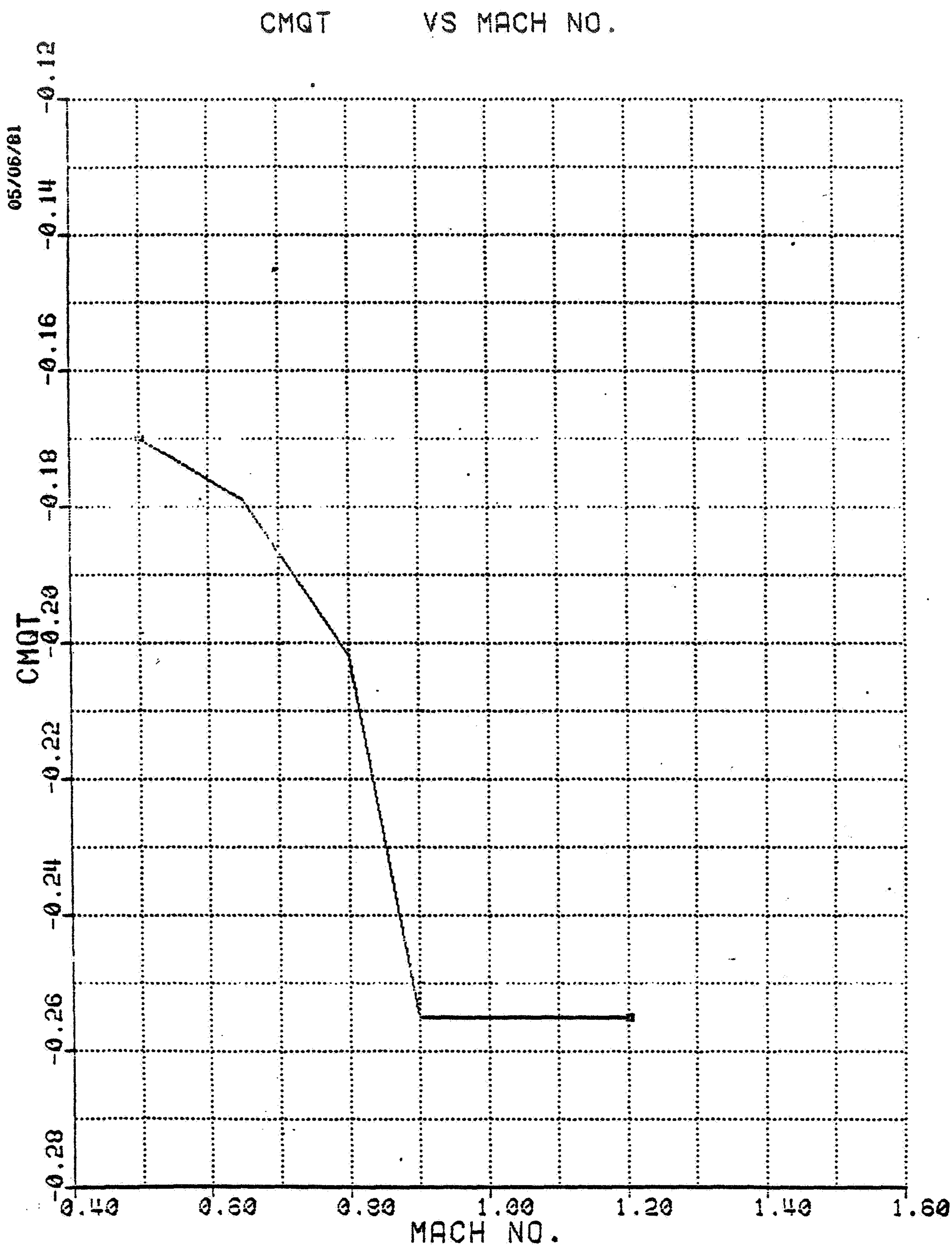
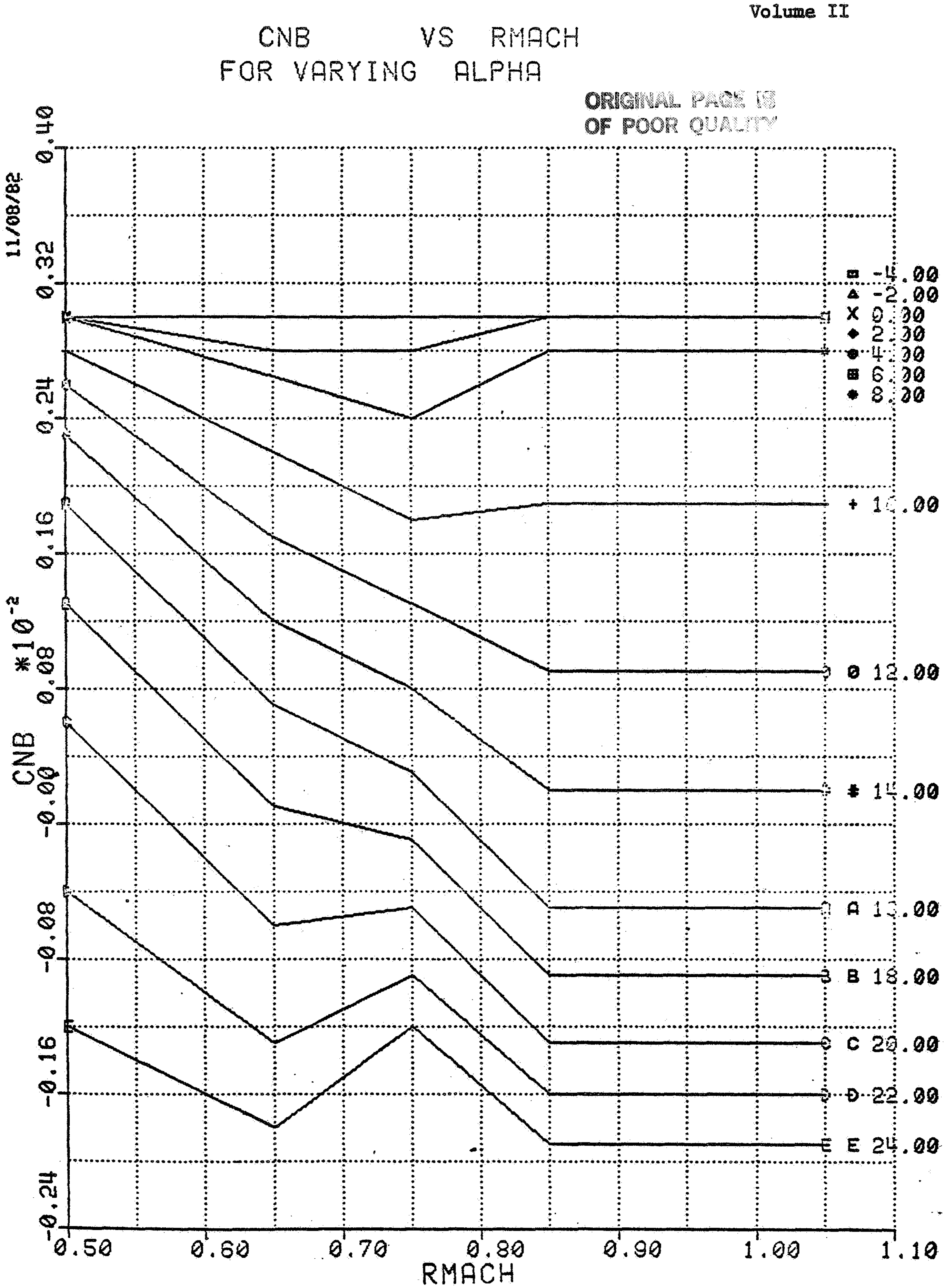



CMBAS1 VS ALPHA
05/06/81
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
CMBAS1
-240.00
-160.00
-80.00
0.00
80.00
160.00
240.00
ALPHA

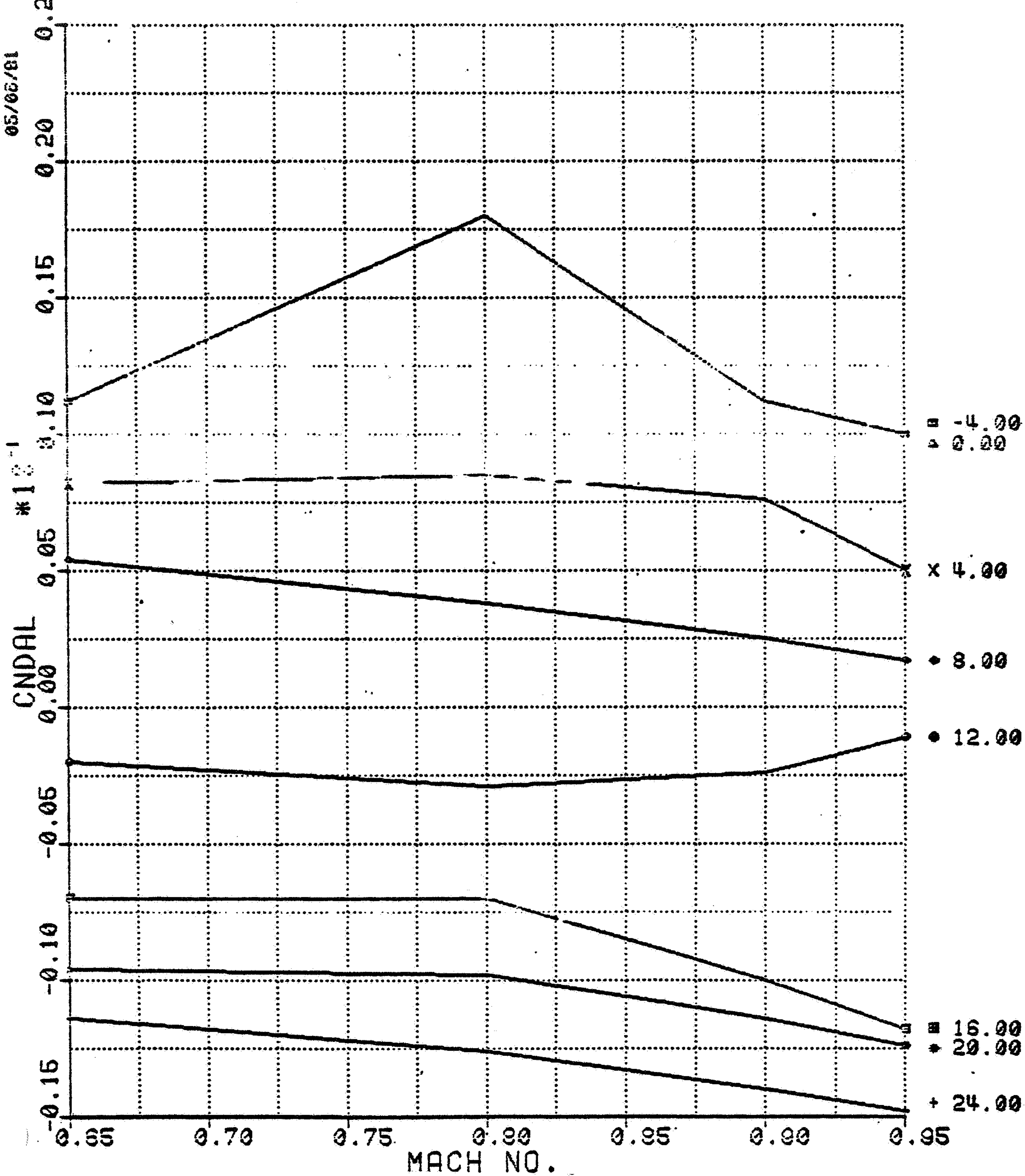
CMBAS2 VS ALPHA
FOR VARYING RMACH

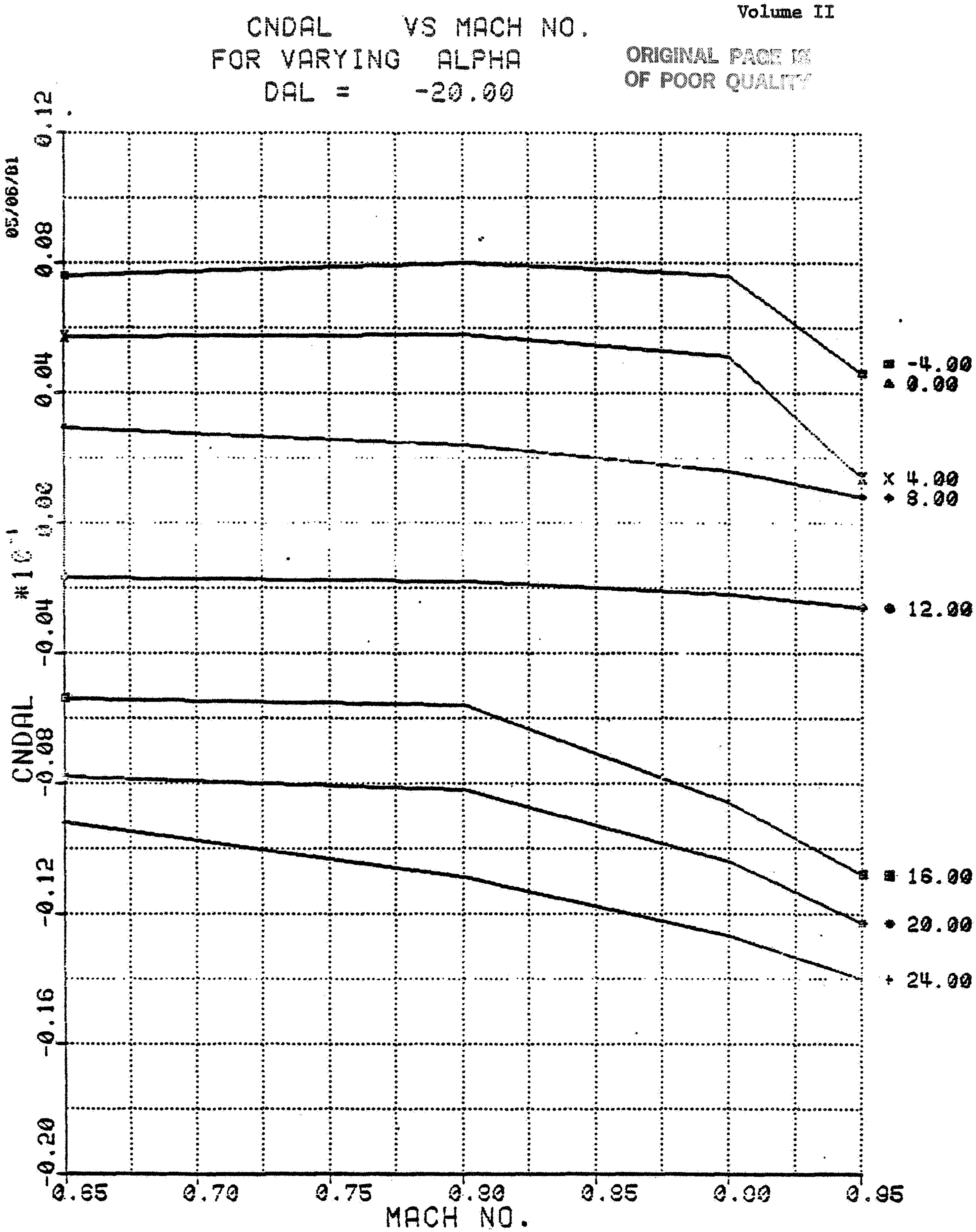


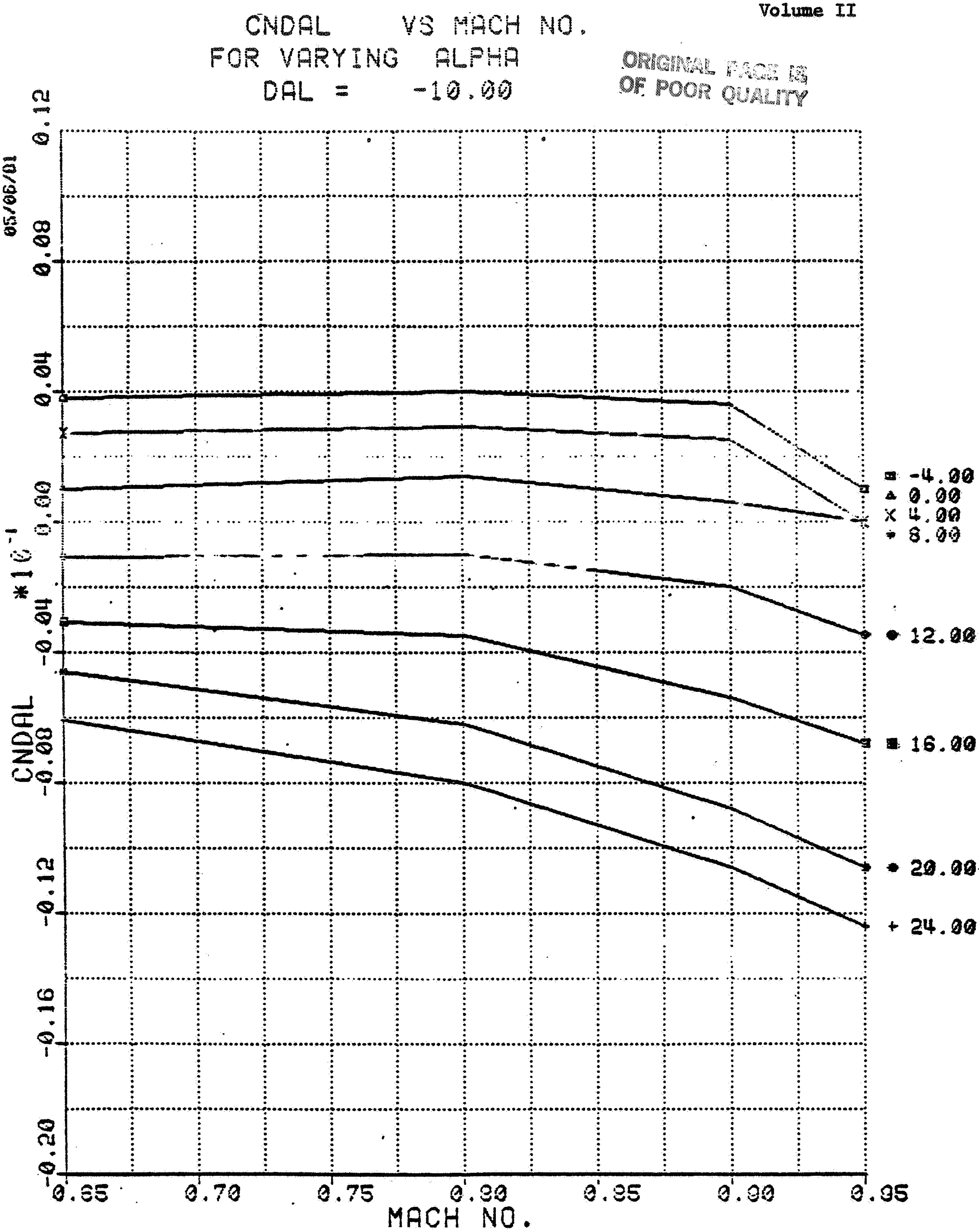

CMQT VS MACH NO.
05/06/81
CMQT
-0.12
-0.14
-0.16
-0.18
-0.20
-0.22
-0.24
-0.26
-0.28
0.40
0.60
0.80
1.00
1.20
1.40
1.60
MACH NO.


CNB VS RMACH
FOR VARYING ALPHA
11/08/82
0.40
0.32
0.24
0.16
0.08
-0.00
-0.08
-0.16
-0.24
CNB *10^-2
0.50
0.60
0.70
0.80
0.90
1.00
1.10
RMACH
-4.00
-2.00
0.00
2.00
4.00
6.00
8.00
+ 10.00
12.00
14.00
A 16.00
B 18.00
C 20.00
D 22.00
E 24.00

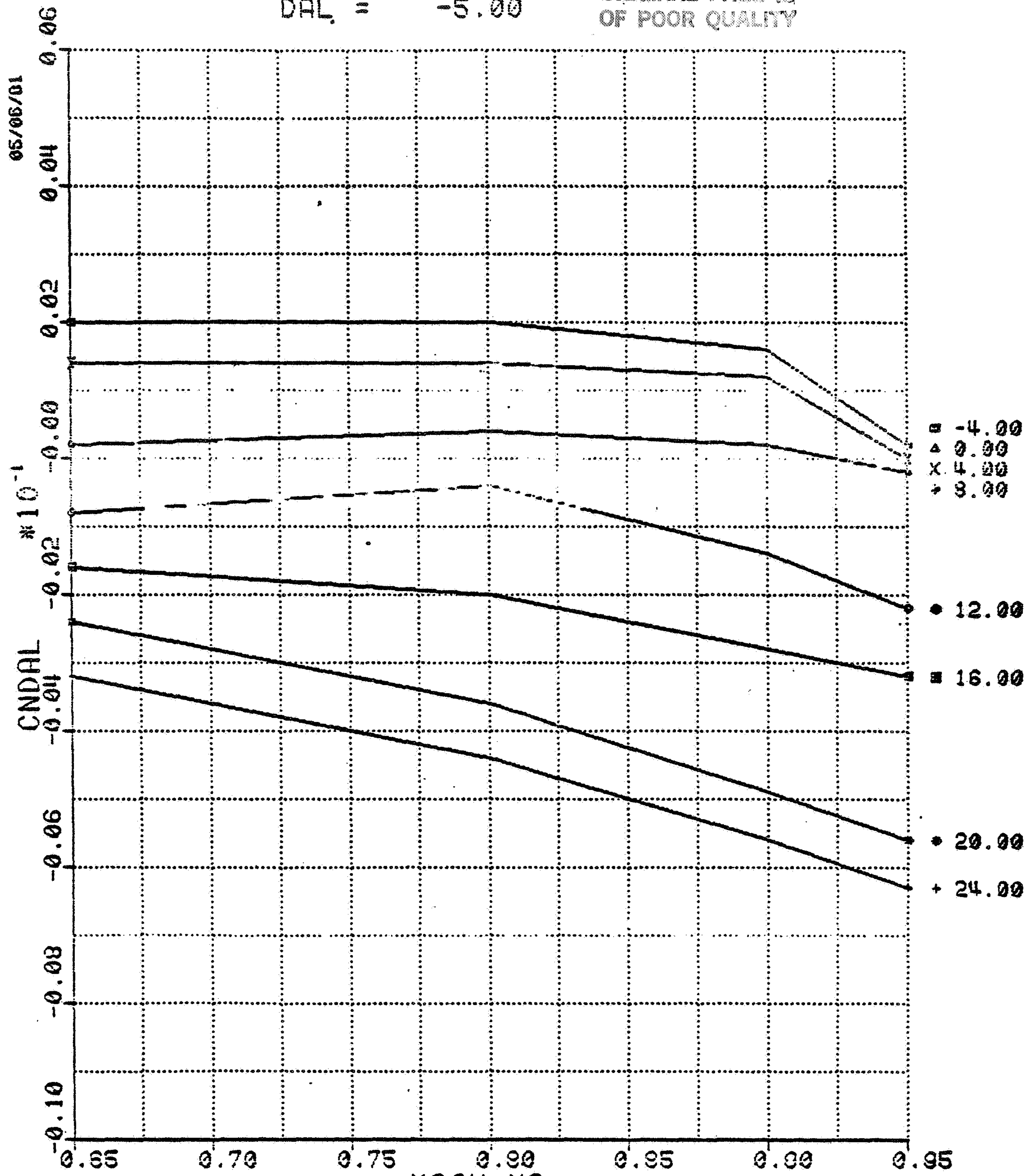
CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -30.00

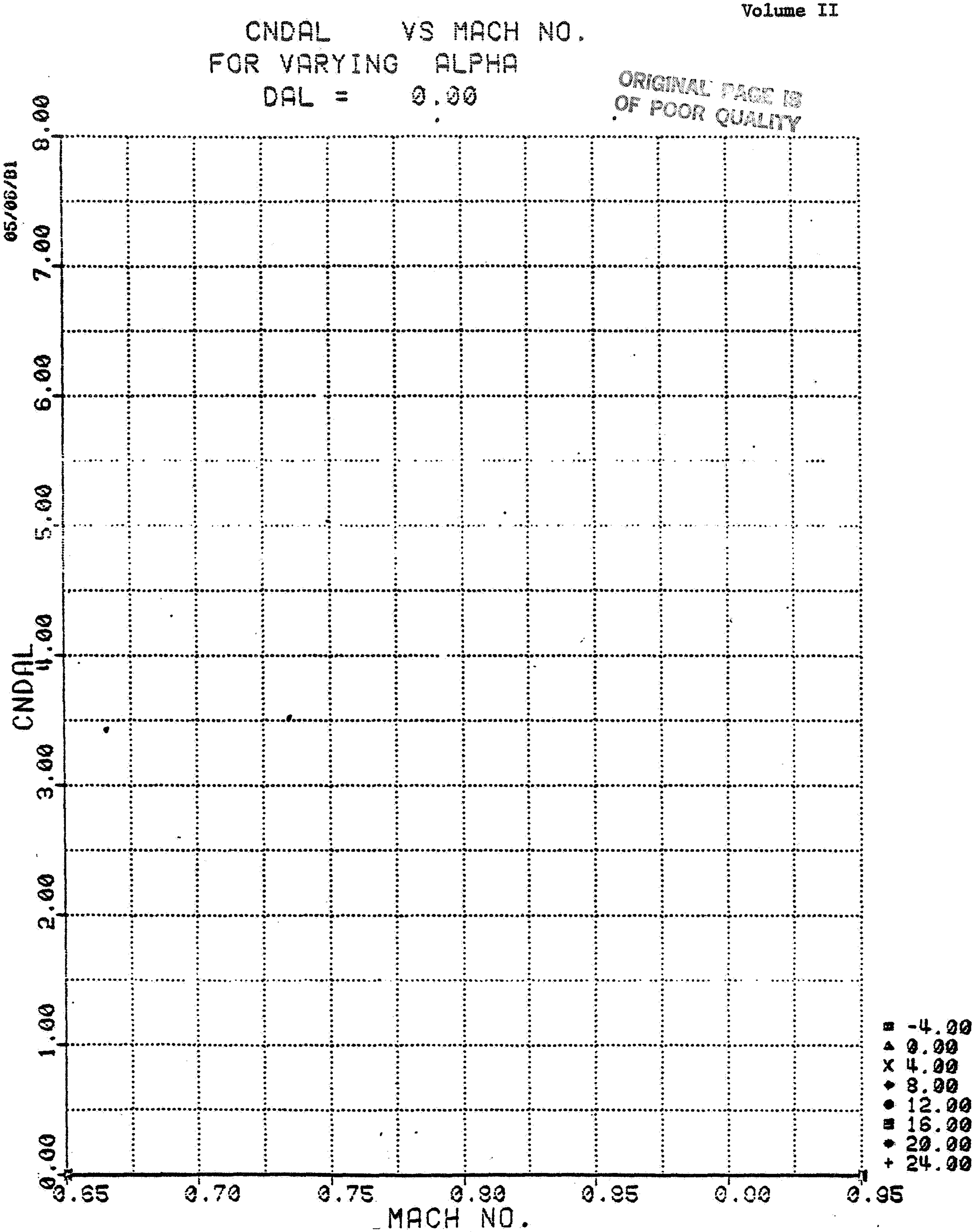


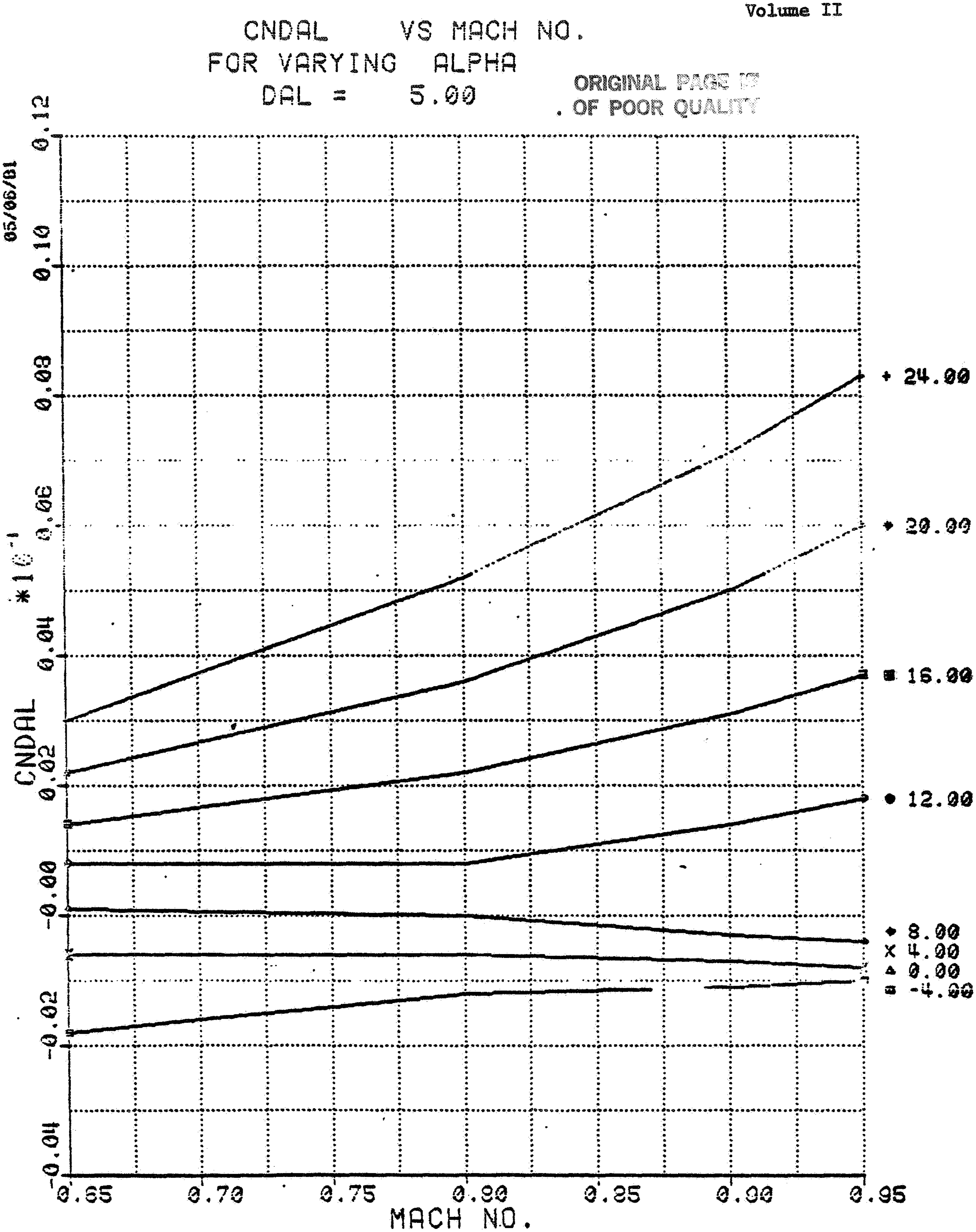

CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -20.00
05/06/81
CNDAL *10^-1
0.12
0.08
0.04
0.0
-0.04
-0.08
-0.12
-0.16
-0.20
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00


CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -10.00
ORIGINAL PAGE IS
OF POOR QUALITY
05/06/81
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
-0.16
-0.20
*10⁻¹
CNDAL
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00

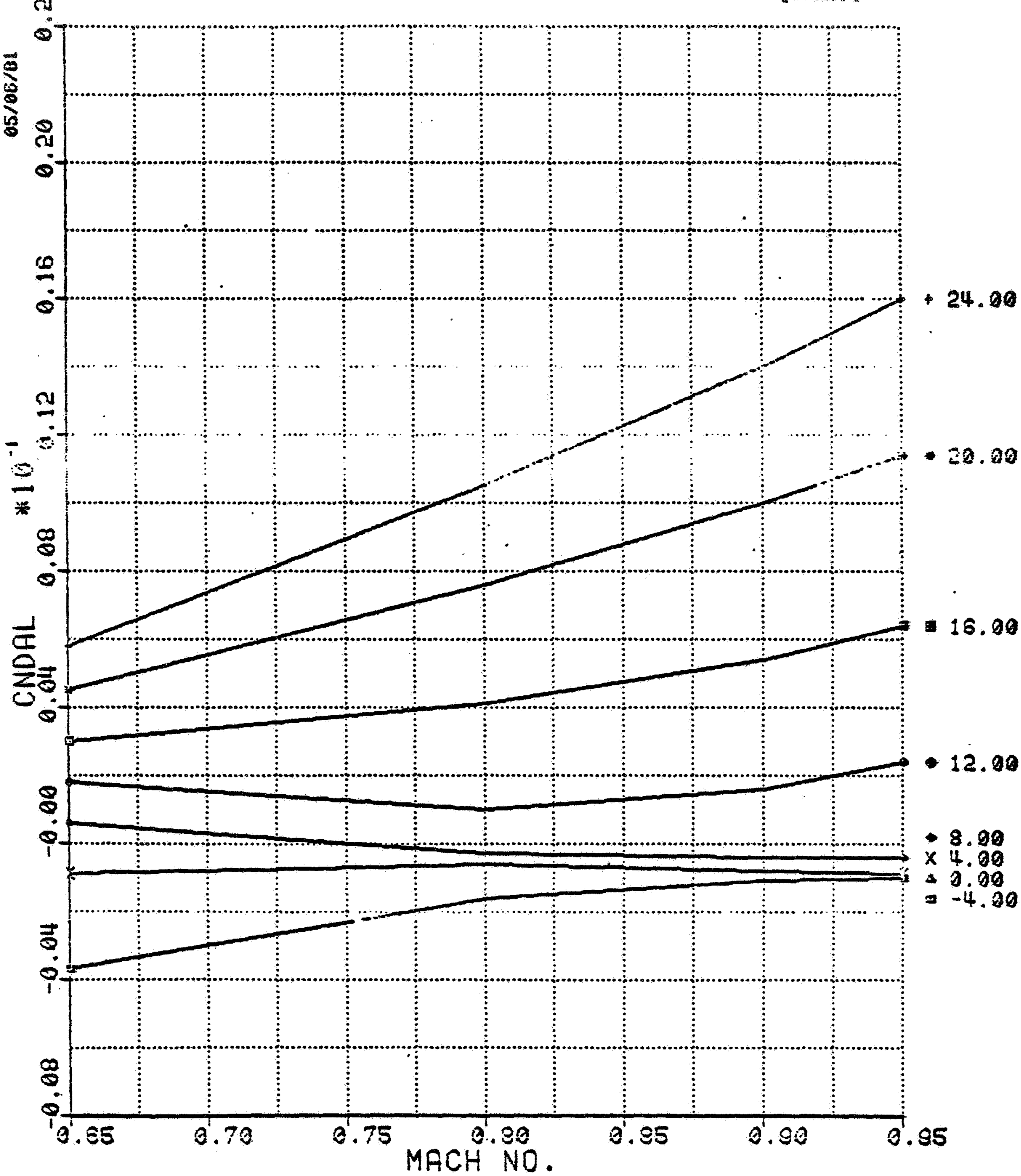
CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -5.00

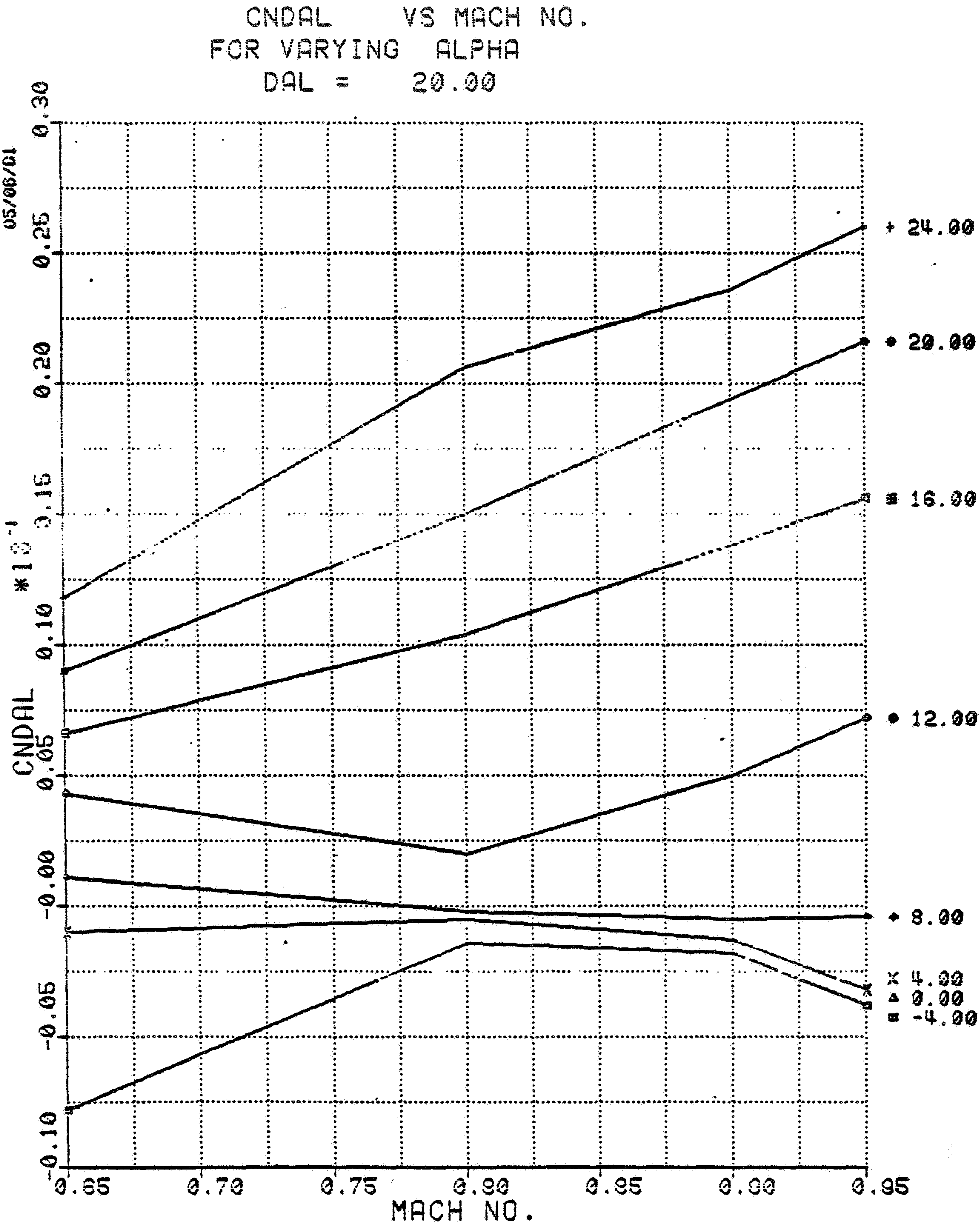



CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = 0.00
05/06/81
CNDAL
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00

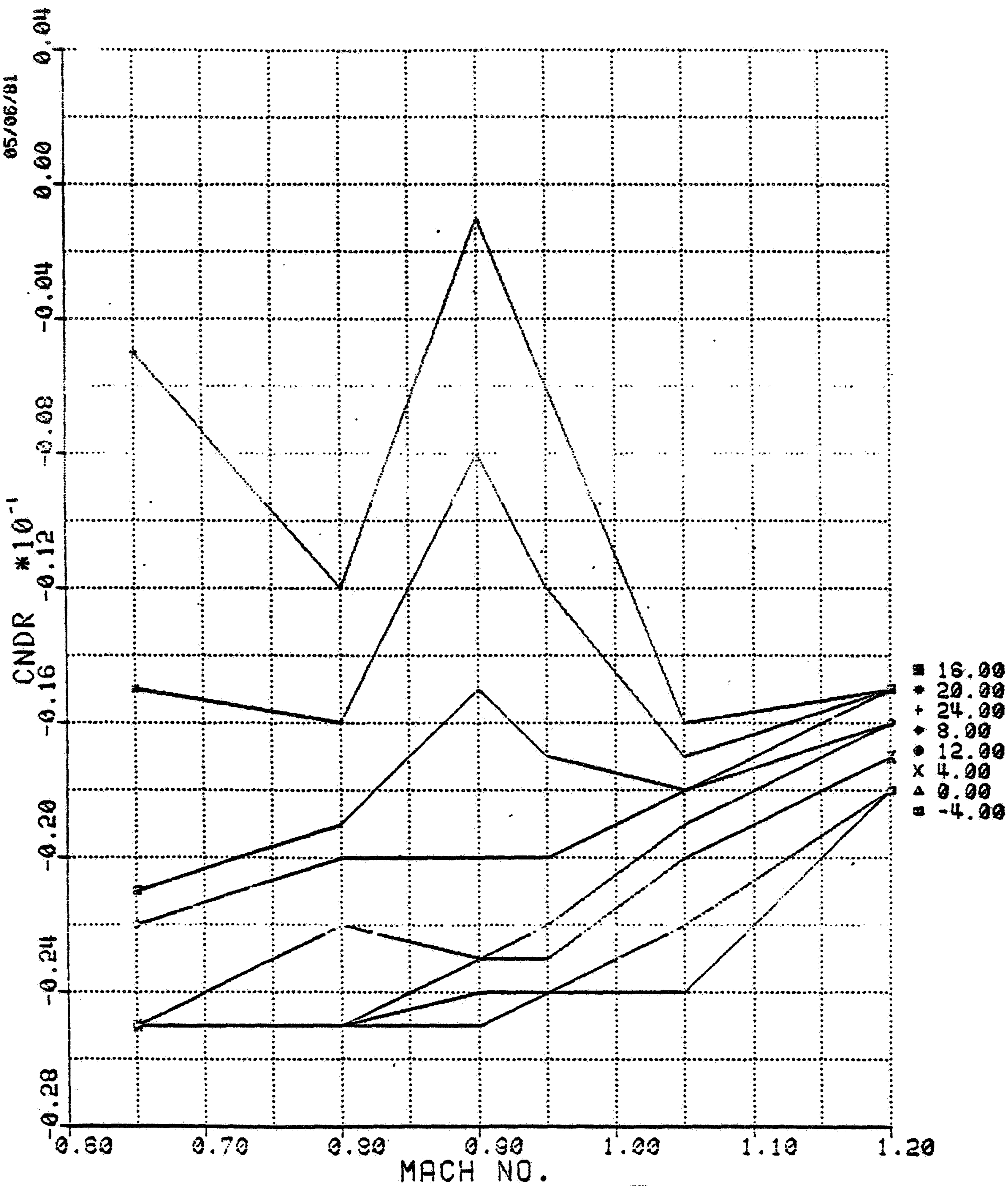

CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = 5.00
05/06/81
0.12
0.10
0.08
0.06
0.04
0.02
-0.00
-0.02
-0.04
CNDAL
*10^-1
+ 24.00
+ 20.00
16.00
12.00
8.00
X 4.00
0.00
-4.00
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.

CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = 10.00




CNDAL VS MACH NO.
FOR VARYING ALPHA
DAL = 20.00
05/06/81
CNDAL *10^-1
0.30
0.25
0.20
0.15
0.10
0.05
-0.00
-0.05
-0.10
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
+ 24.00
• 20.00
▪ 16.00
• 12.00
• 8.00
× 4.00
▲ 0.00
▪ -4.00

CNDR VS MACH NO.
FOR VARYING ALPHA



CNP VS MACH NO.
FOR VARYING ALPHA

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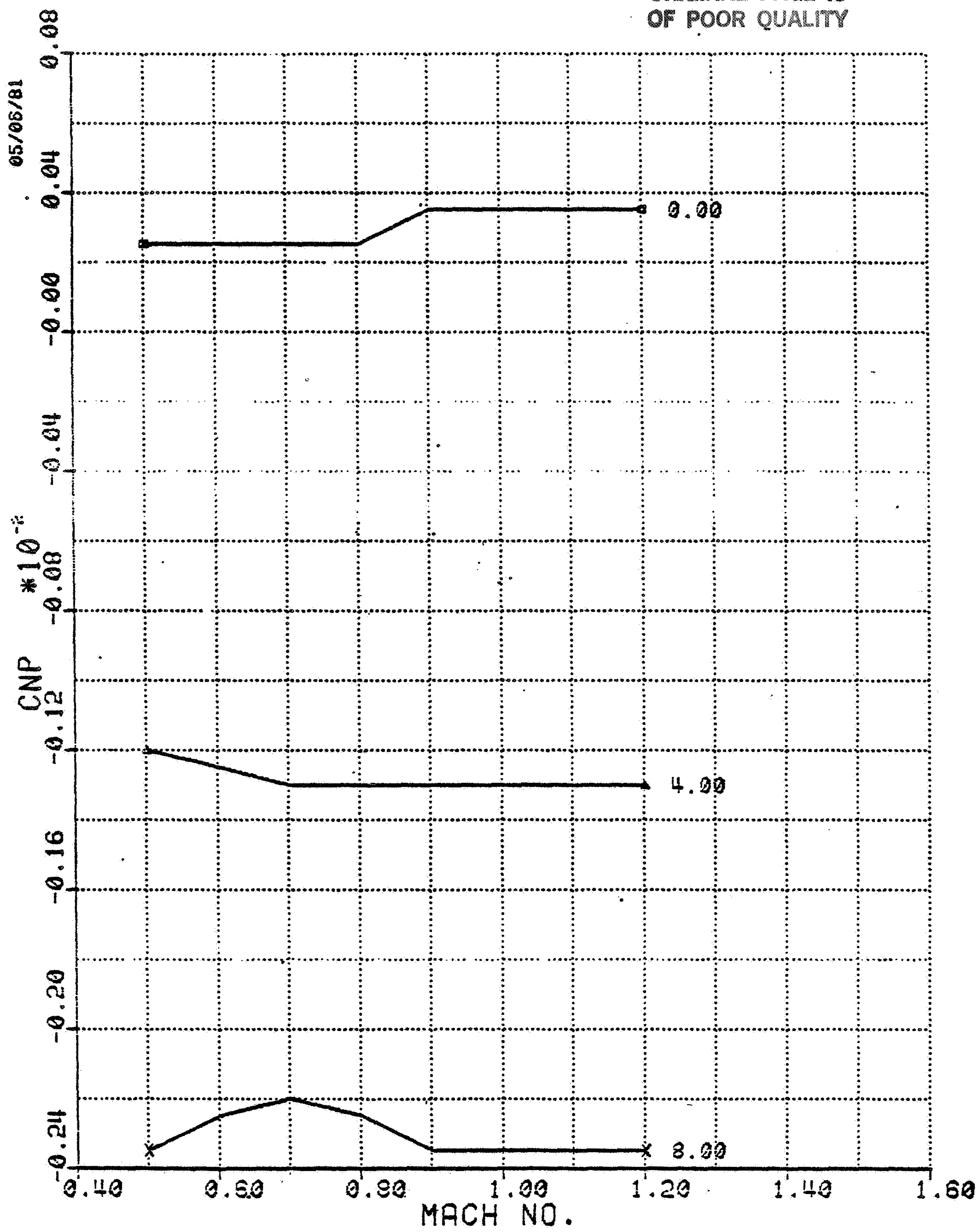
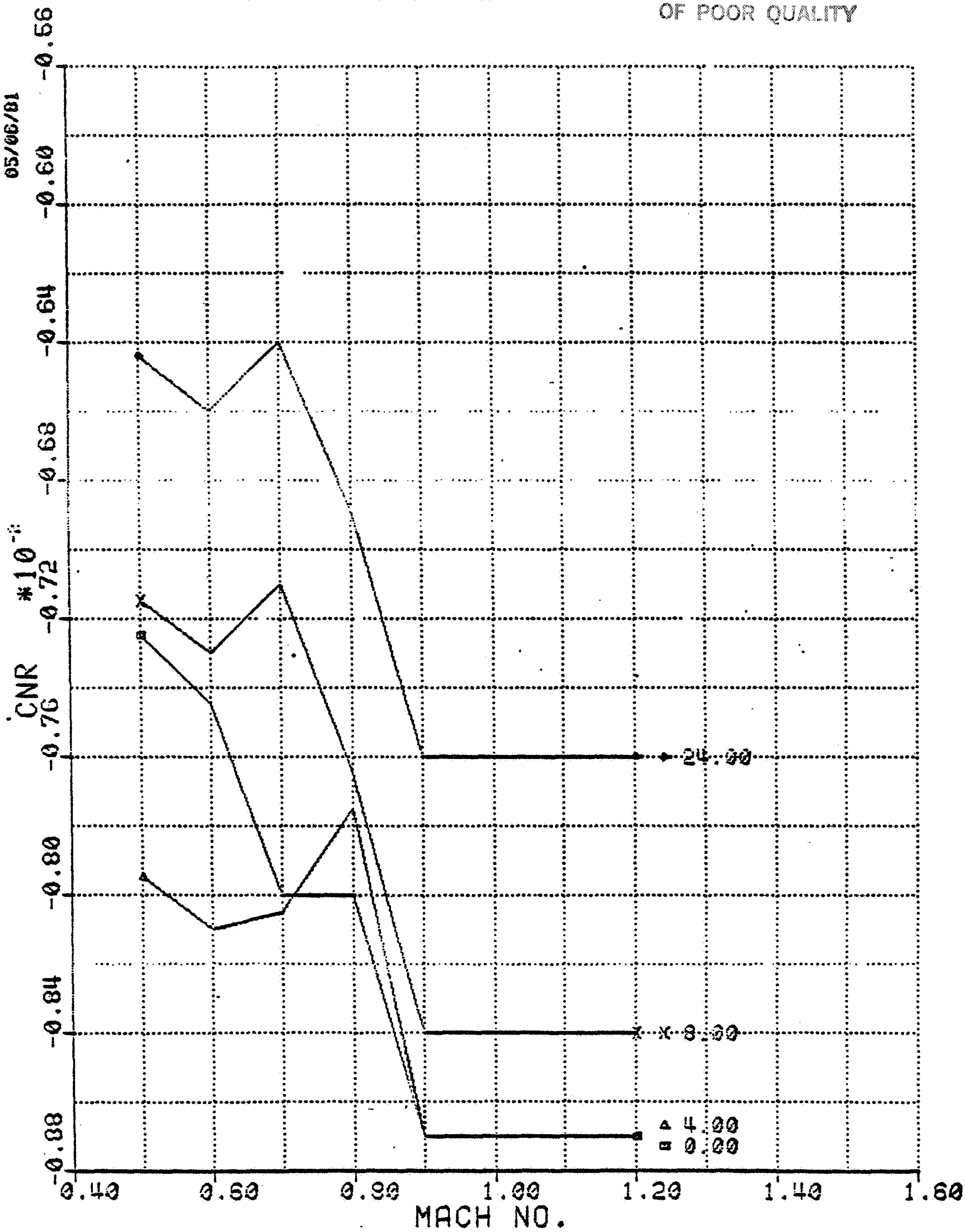
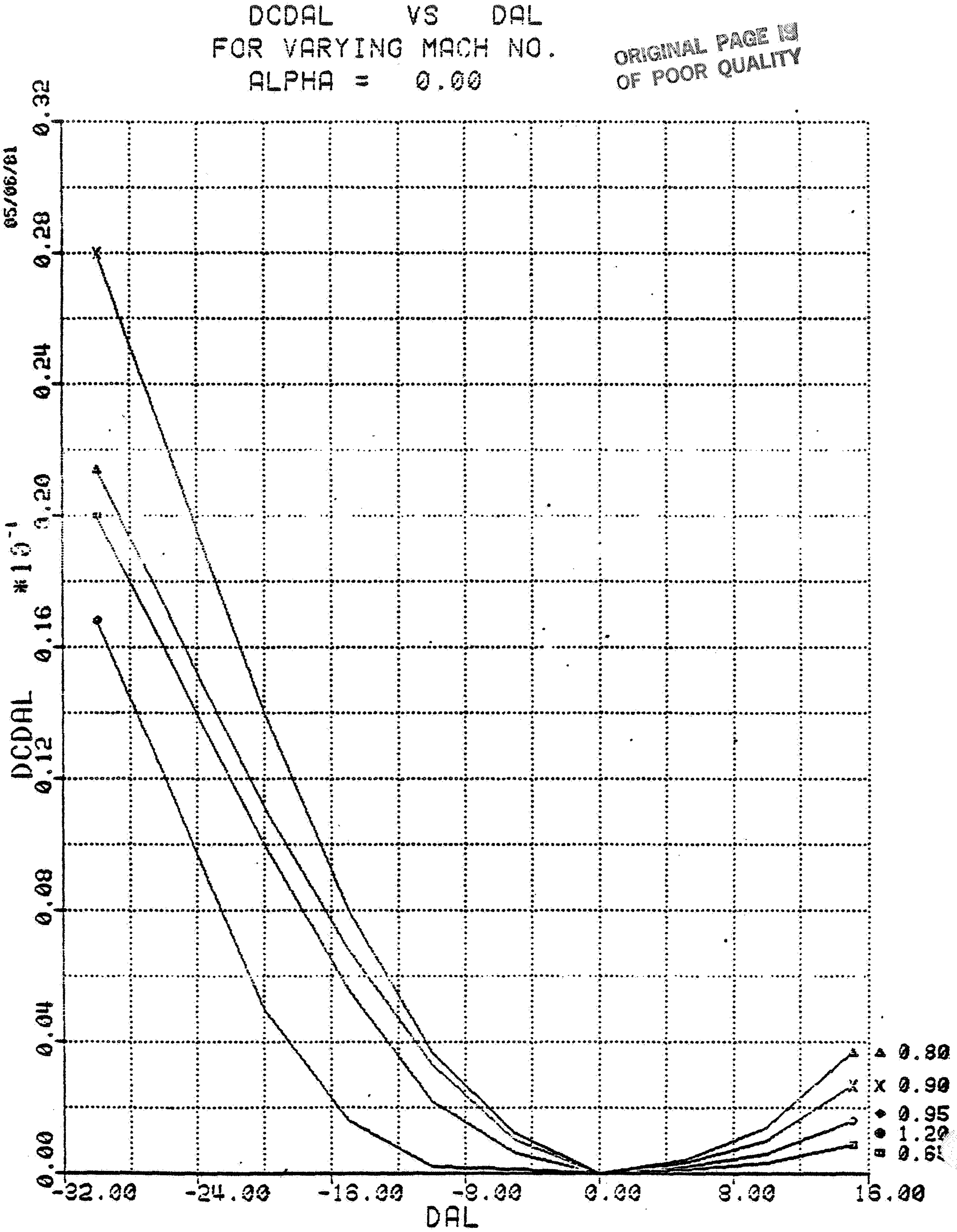
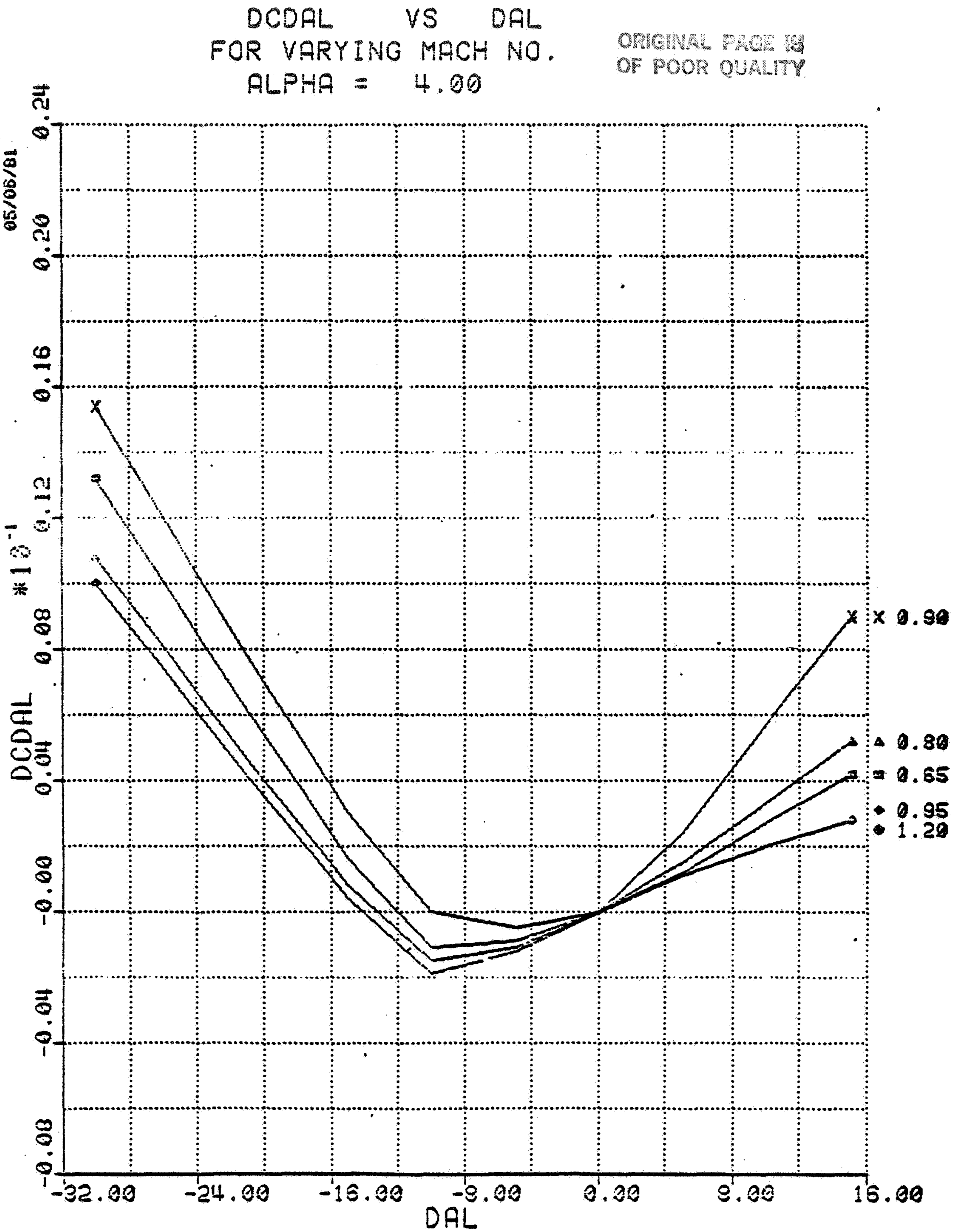
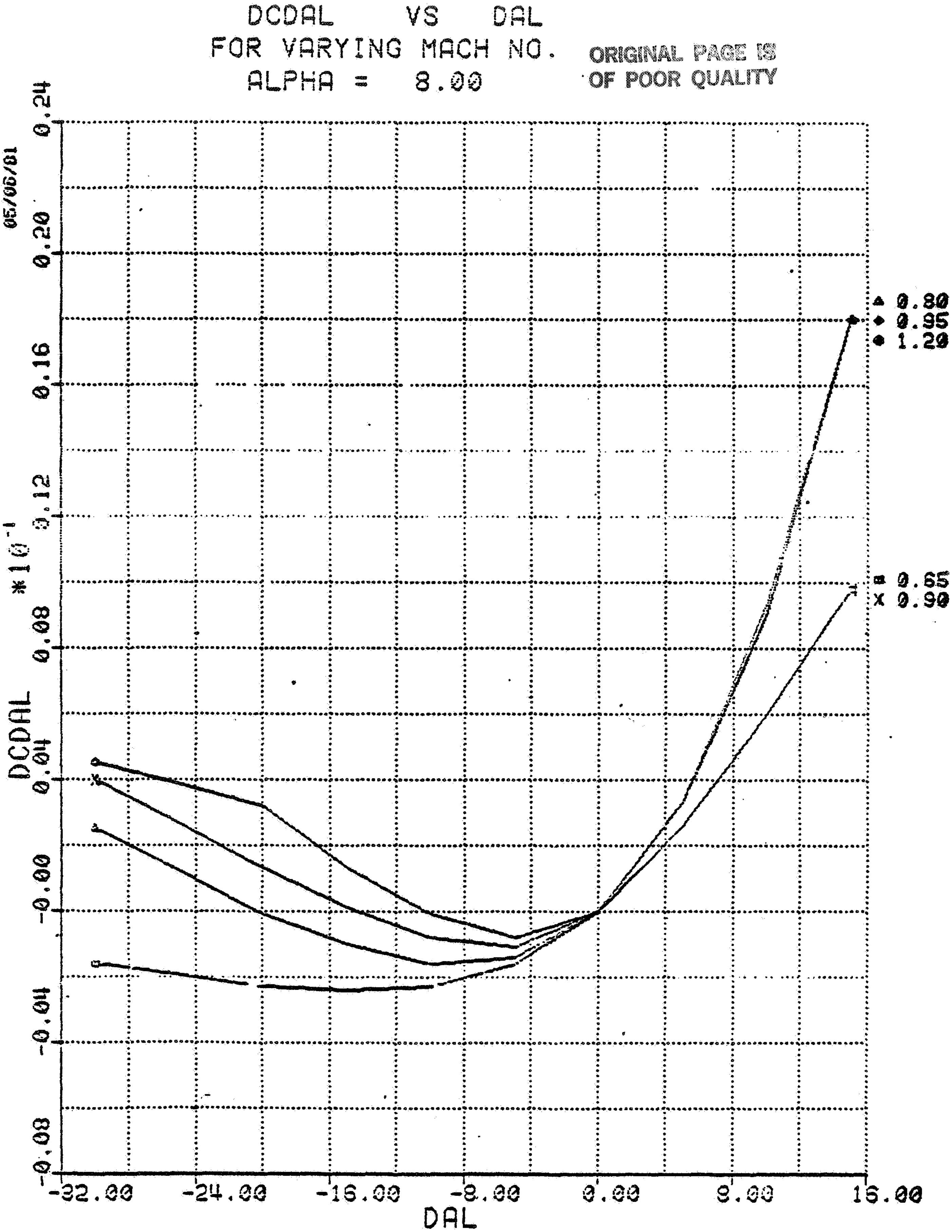


CNR VS MACH NO.
FOR VARYING ALPHA




DCDAL VS DAL
FOR VARYING MACH NO.
ALPHA = 0.00
05/06/81
DCDAL *10^-1
0.00
0.04
0.08
0.12
0.16
0.20
0.24
0.28
0.32
-32.00
-24.00
-16.00
-8.00
0.00
8.00
16.00
DAL
0.80
0.90
0.95
1.20
0.65


DCDAL VS DAL
FOR VARYING MACH NO.
ALPHA = 4.00
05/06/81
DCDAL *10^-1
0.24
0.20
0.16
0.12
0.08
0.04
-0.00
-0.04
-0.08
DAL
-32.00
-24.00
-16.00
-8.00
0.00
8.00
16.00
X 0.90
▲ 0.80
■ 0.65
◆ 0.95
● 1.20



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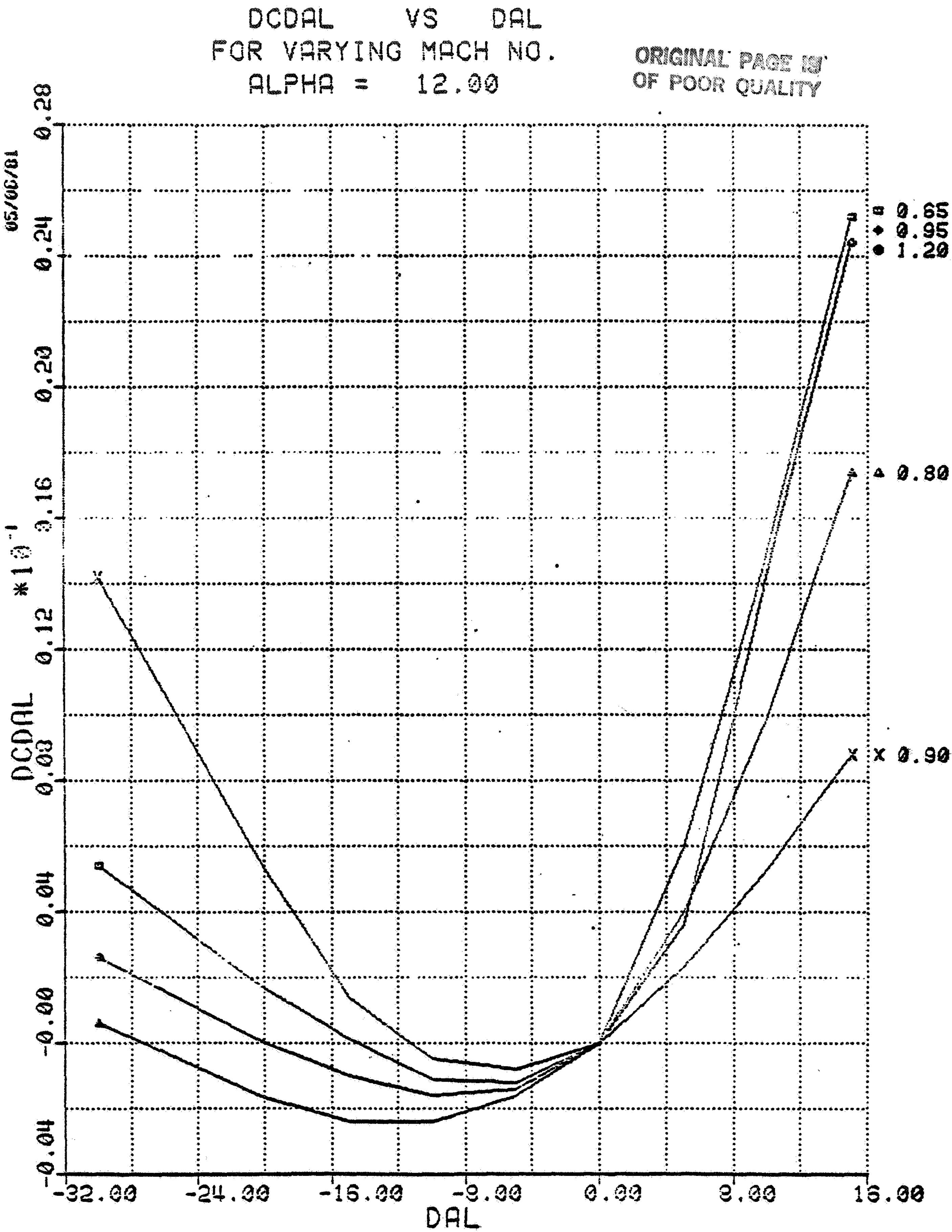
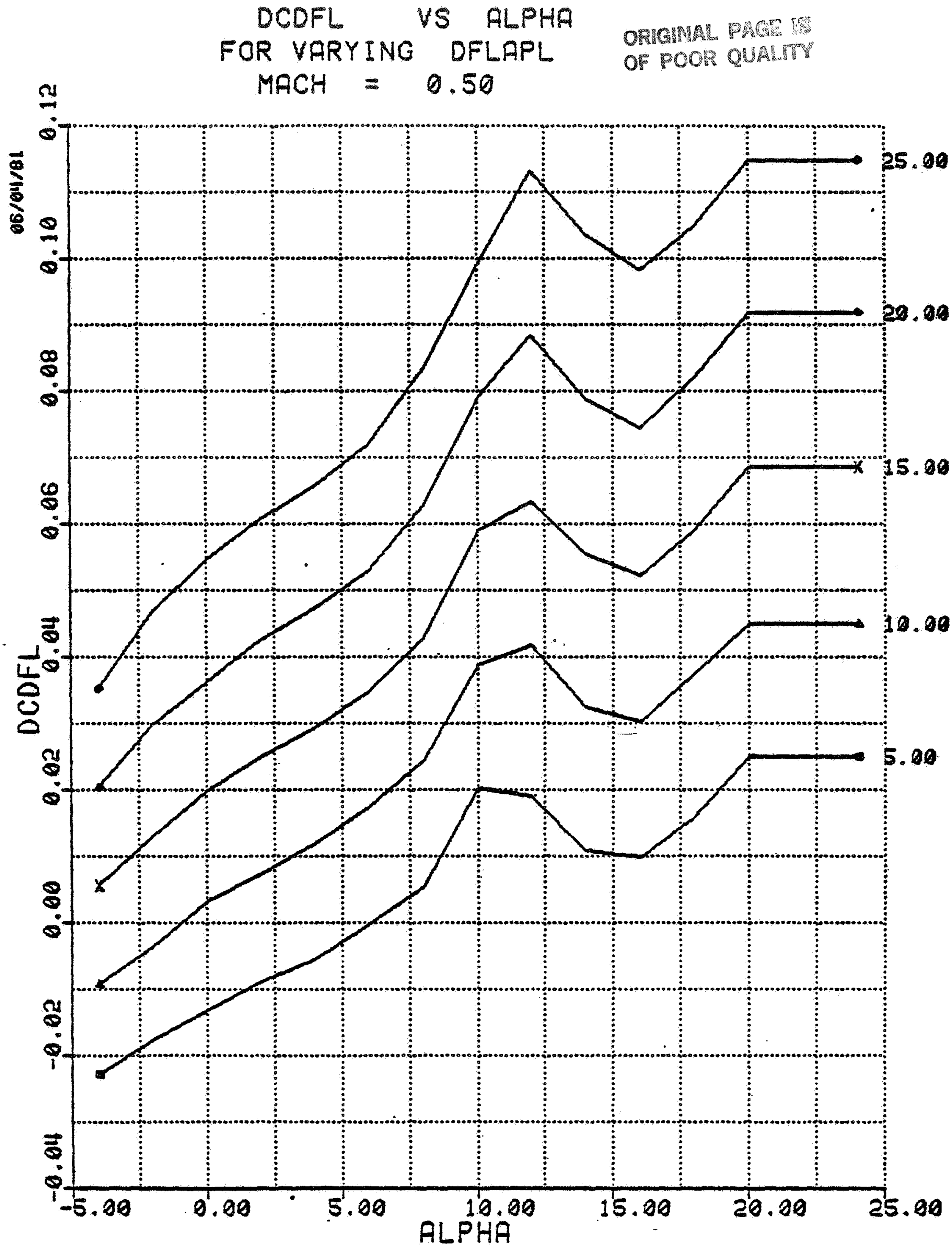
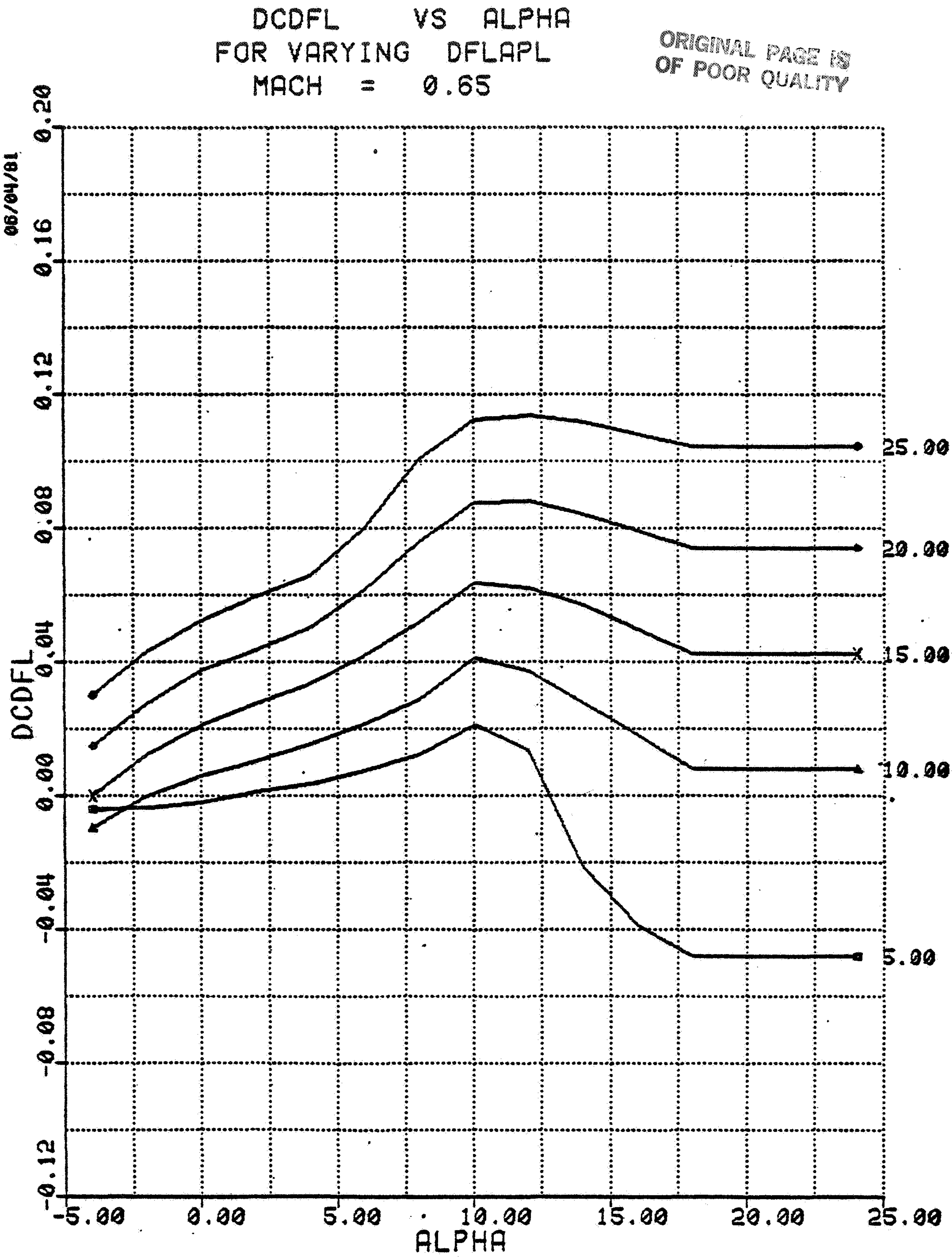
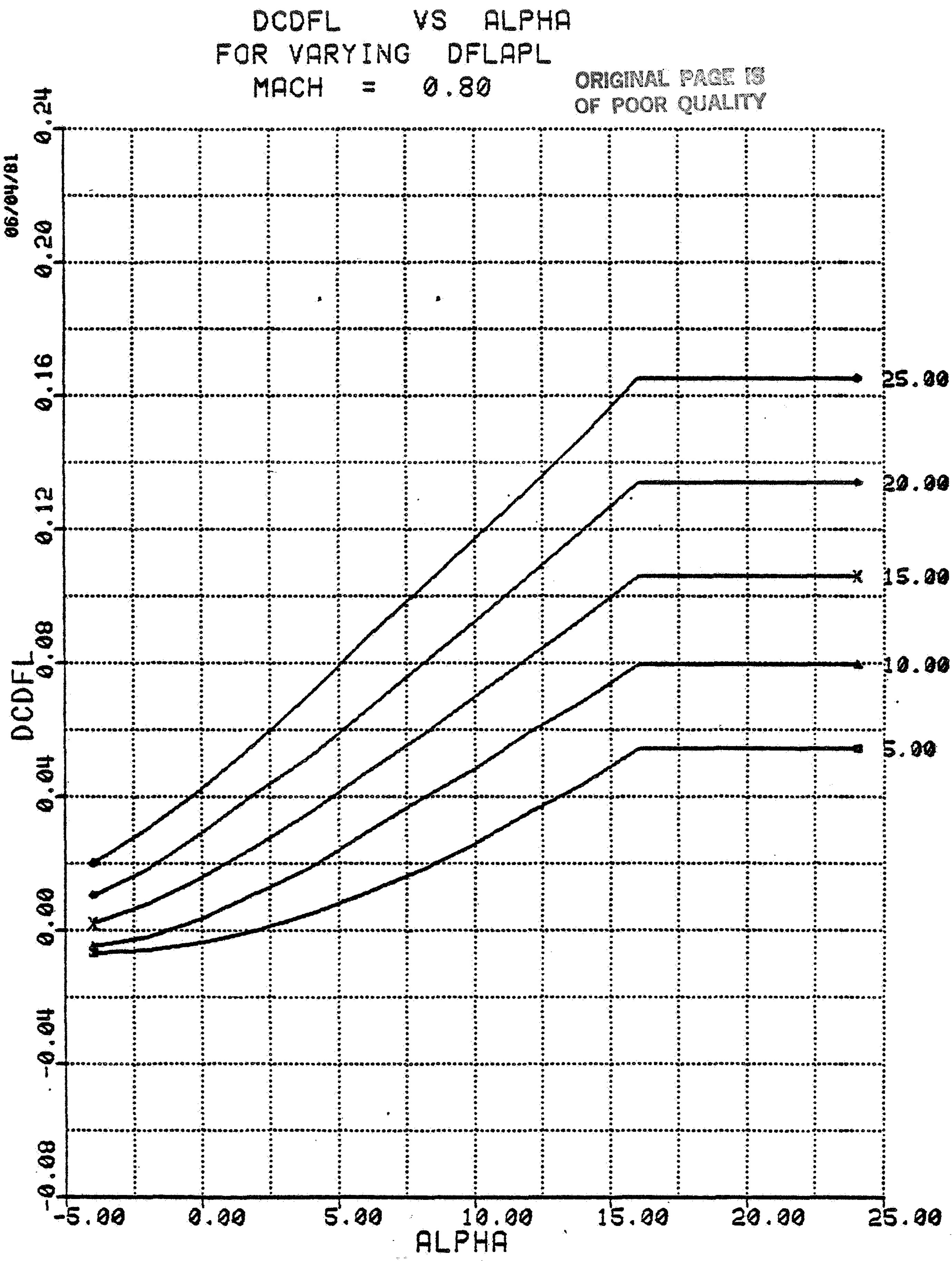

DCDAL VS DAL
FOR VARYING MACH NO.
ALPHA = 12.00
05/06/81
DCDAL *10⁻¹
DAL
-32.00
-24.00
-16.00
-8.00
0.00
8.00
16.00
-0.04
-0.00
0.04
0.08
0.12
0.16
0.20
0.24
0.28
0.65
0.95
1.20
0.80
X 0.90


DCDFL VS ALPHA
FOR VARYING DFLAPL
MACH = 0.50
06/04/81
DCDFL
ALPHA
-0.04
-0.02
0.00
0.02
0.04
0.06
0.08
0.10
0.12
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
25.00
20.00
15.00
10.00
5.00


DCDFL VS ALPHA
FOR VARYING DFLAPL
MACH = 0.65
06/04/81
DCDFL
ALPHA
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
25.00
20.00
15.00
10.00
5.00


DCDFL VS ALPHA
FOR VARYING DFLAPL
MACH = 0.80
06/04/81
DCDFL
ALPHA
0.24
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-0.08
-5.00
0.00
5.00
10.00
15.00
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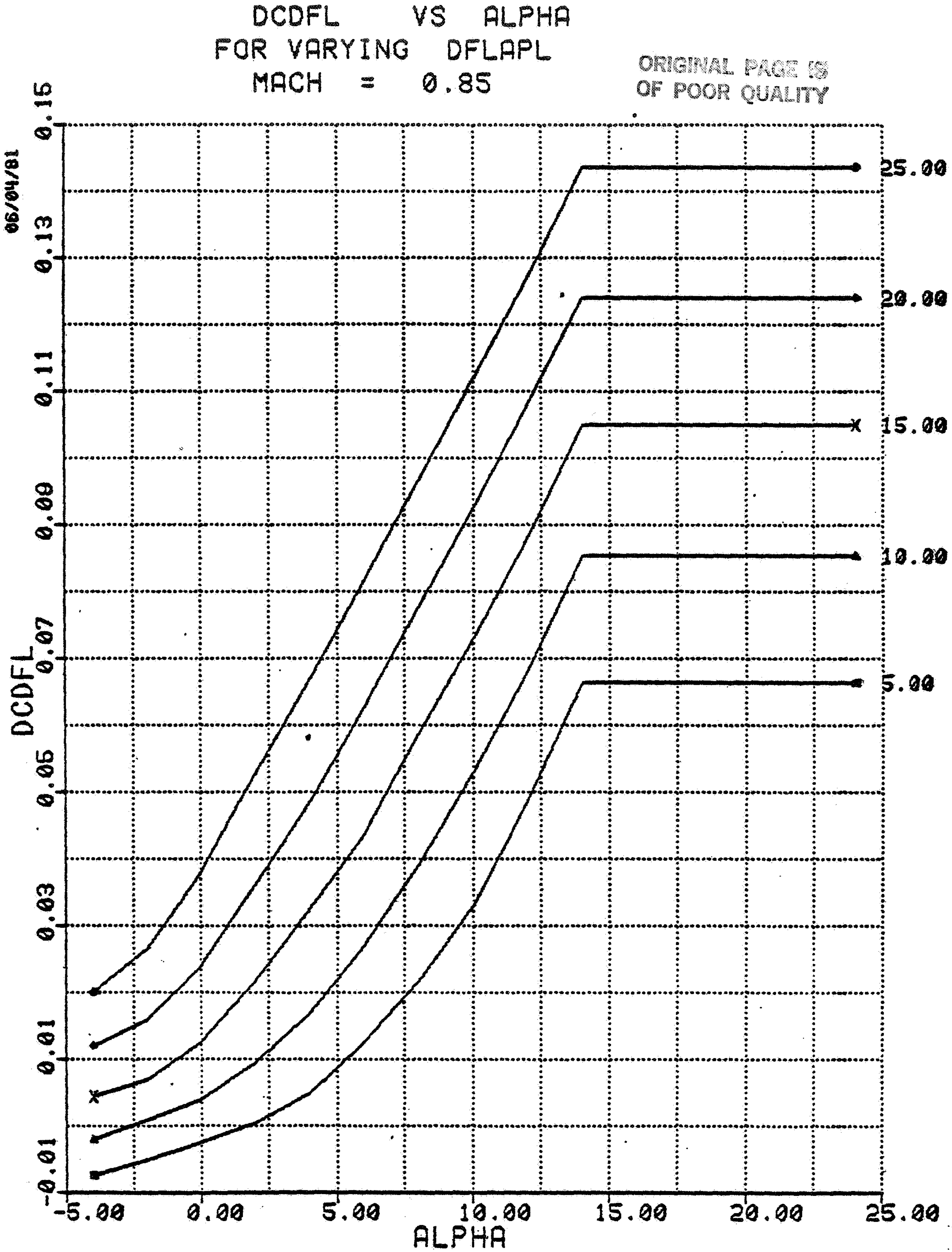
15.00
10.00
5.00


DCDFL VS ALPHA
FOR VARYING DFLAPL
MACH = 0.85
06/04/81
DCDFL
ALPHA
-0.01
0.01
0.03
0.05
0.07
0.09
0.11
0.13
0.15
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
25.00
20.00
15.00
10.00
5.00

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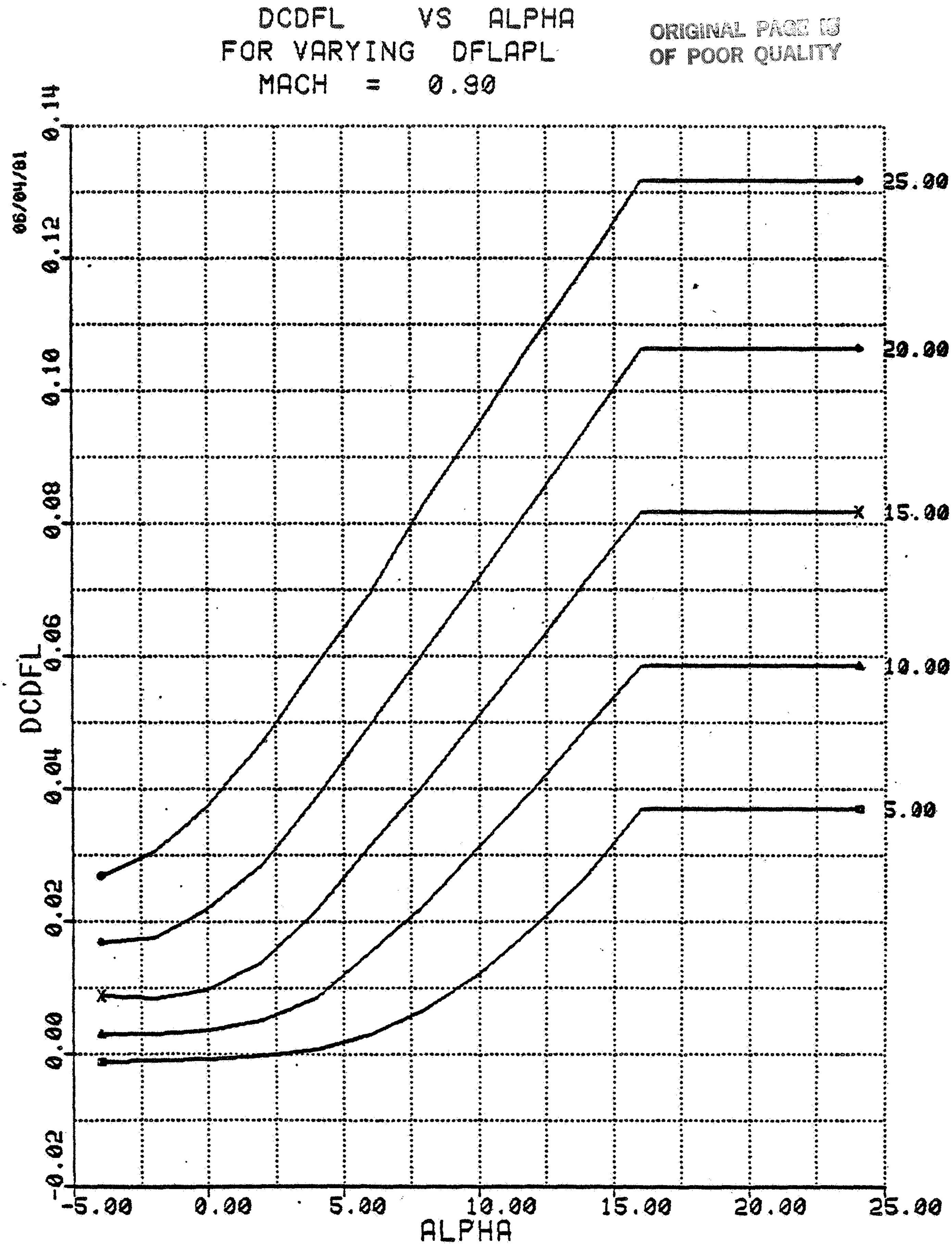

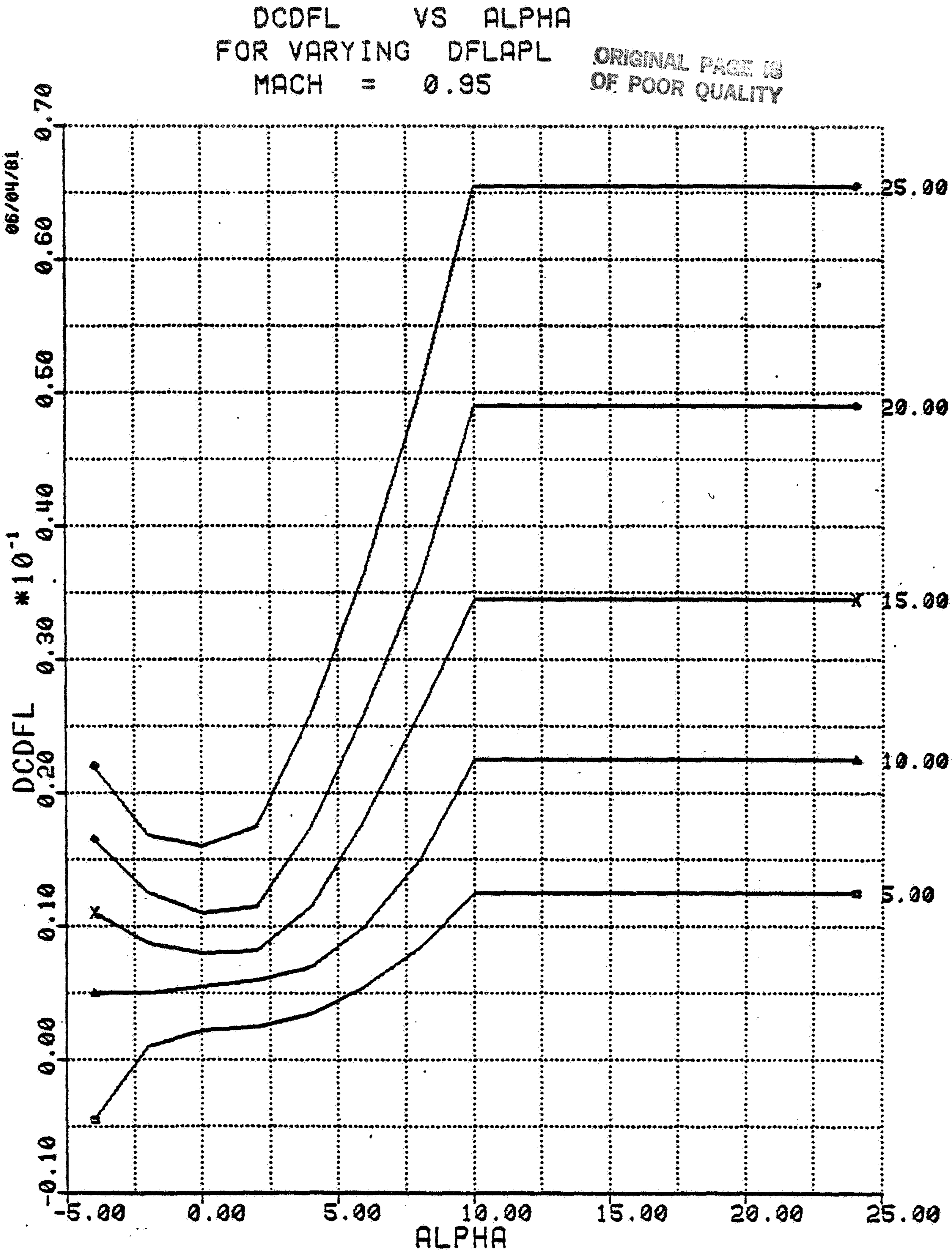
DCDFL VS ALPHA
FOR VARYING DFLAPL
MACH = 0.95
06/04/81
DCDFL
*10⁻¹
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
-0.10
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
25.00
20.00
15.00
10.00
5.00

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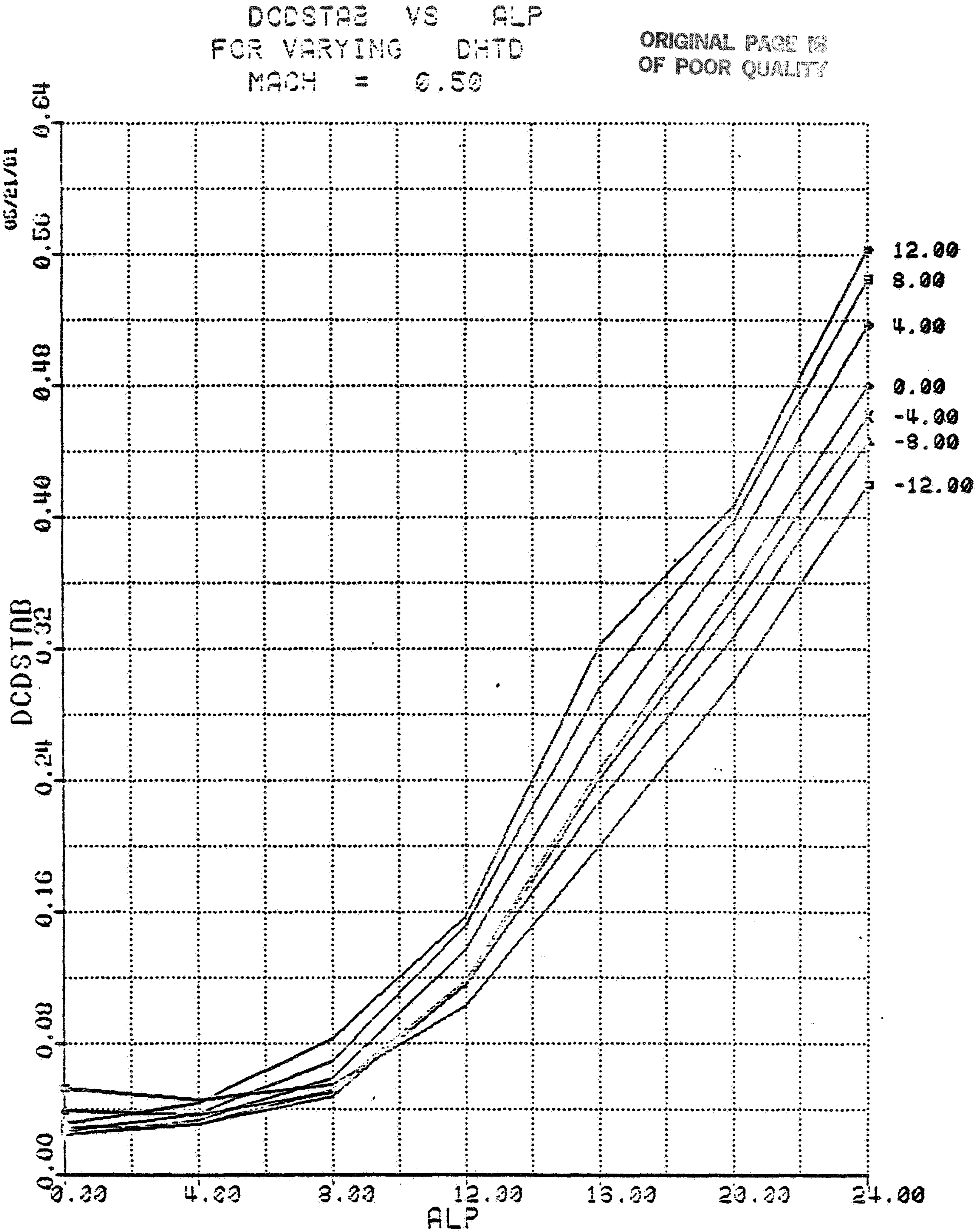
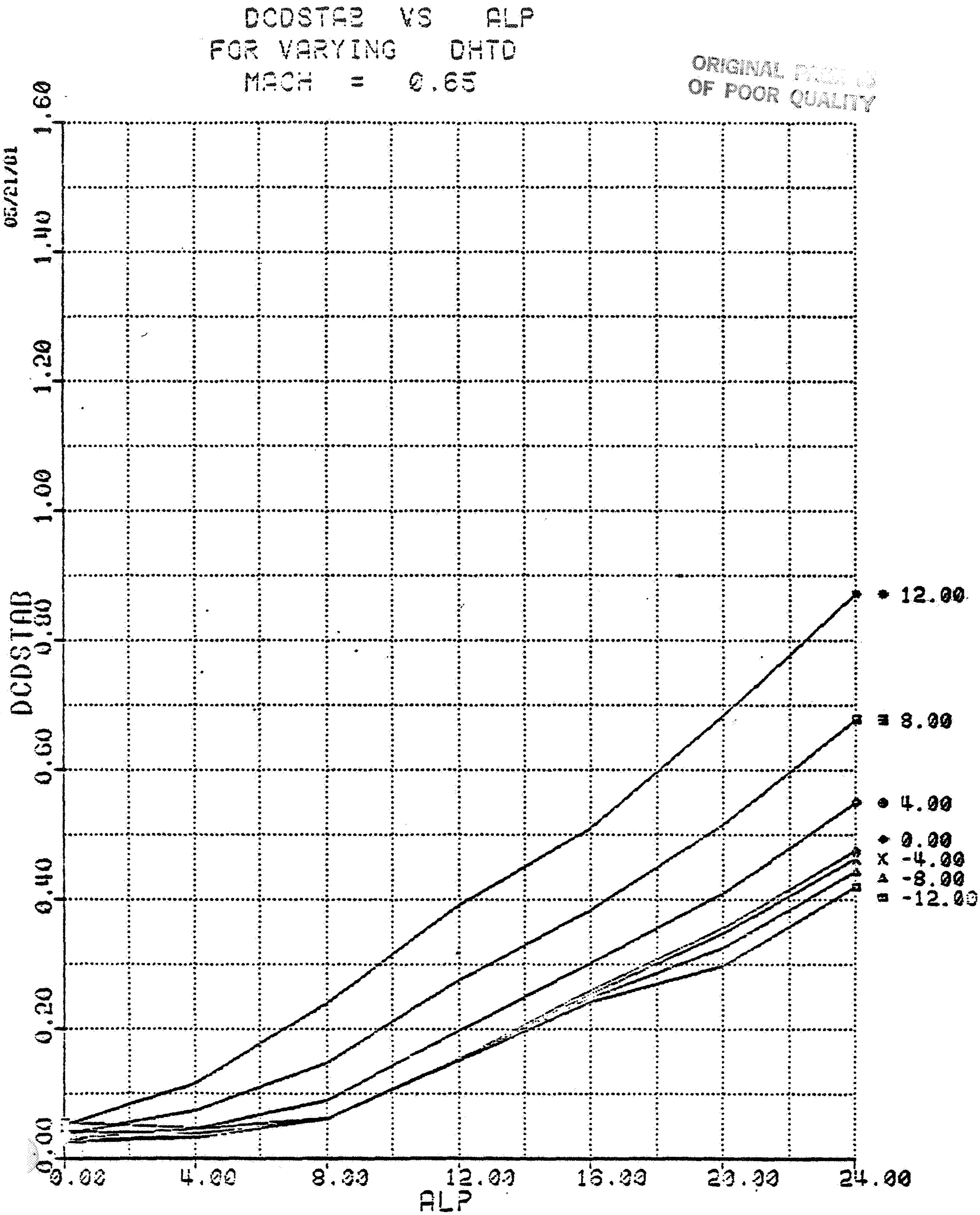
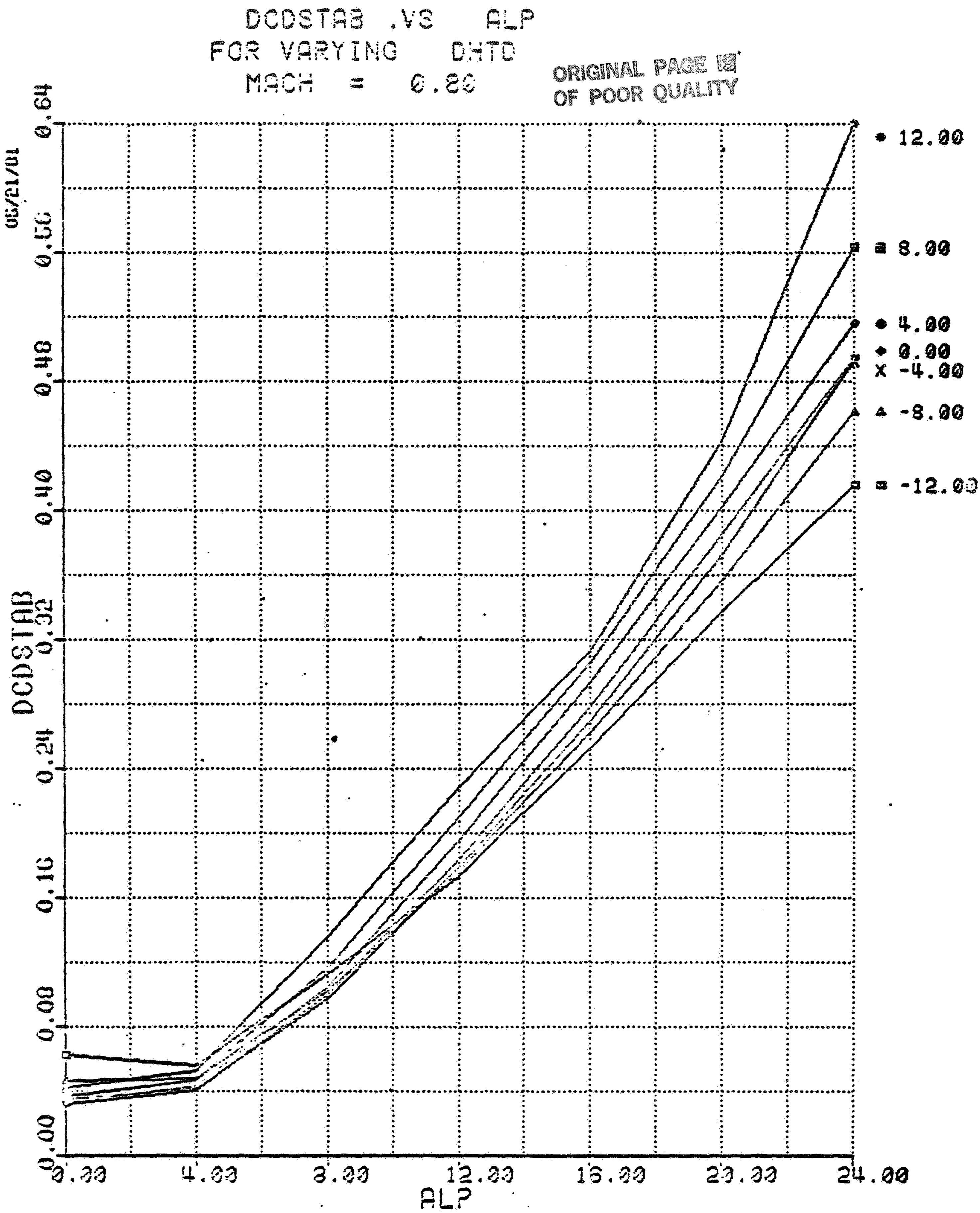
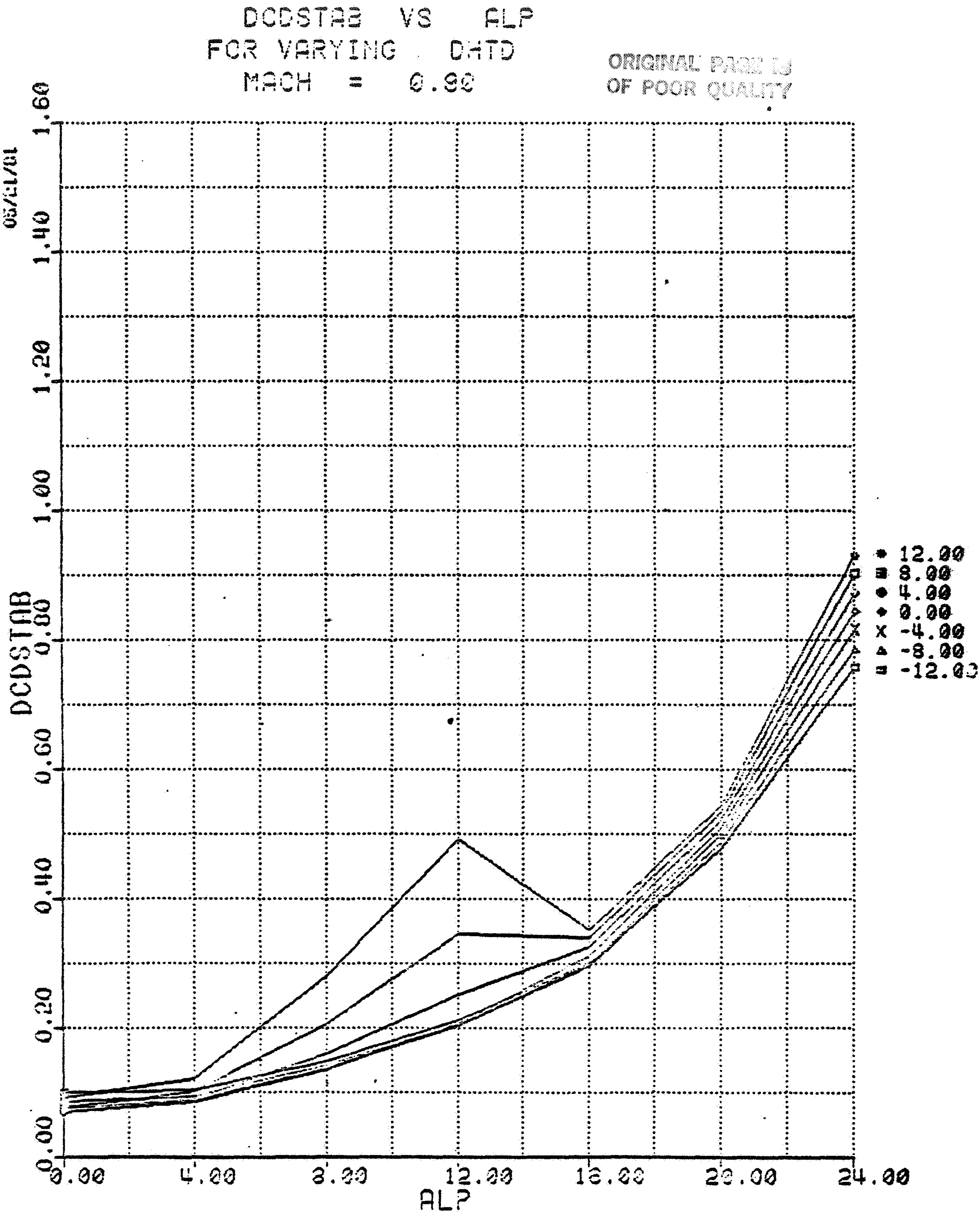
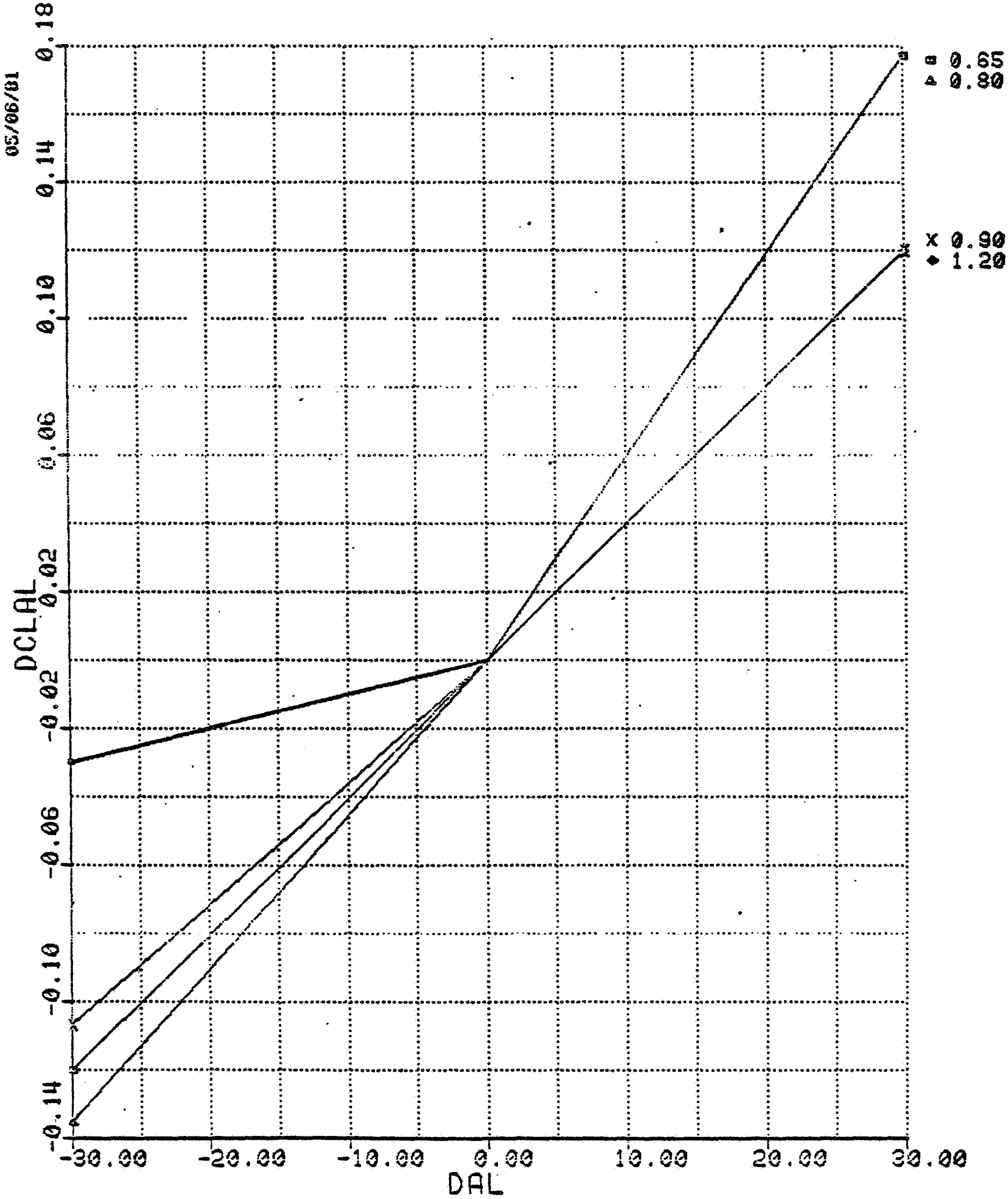


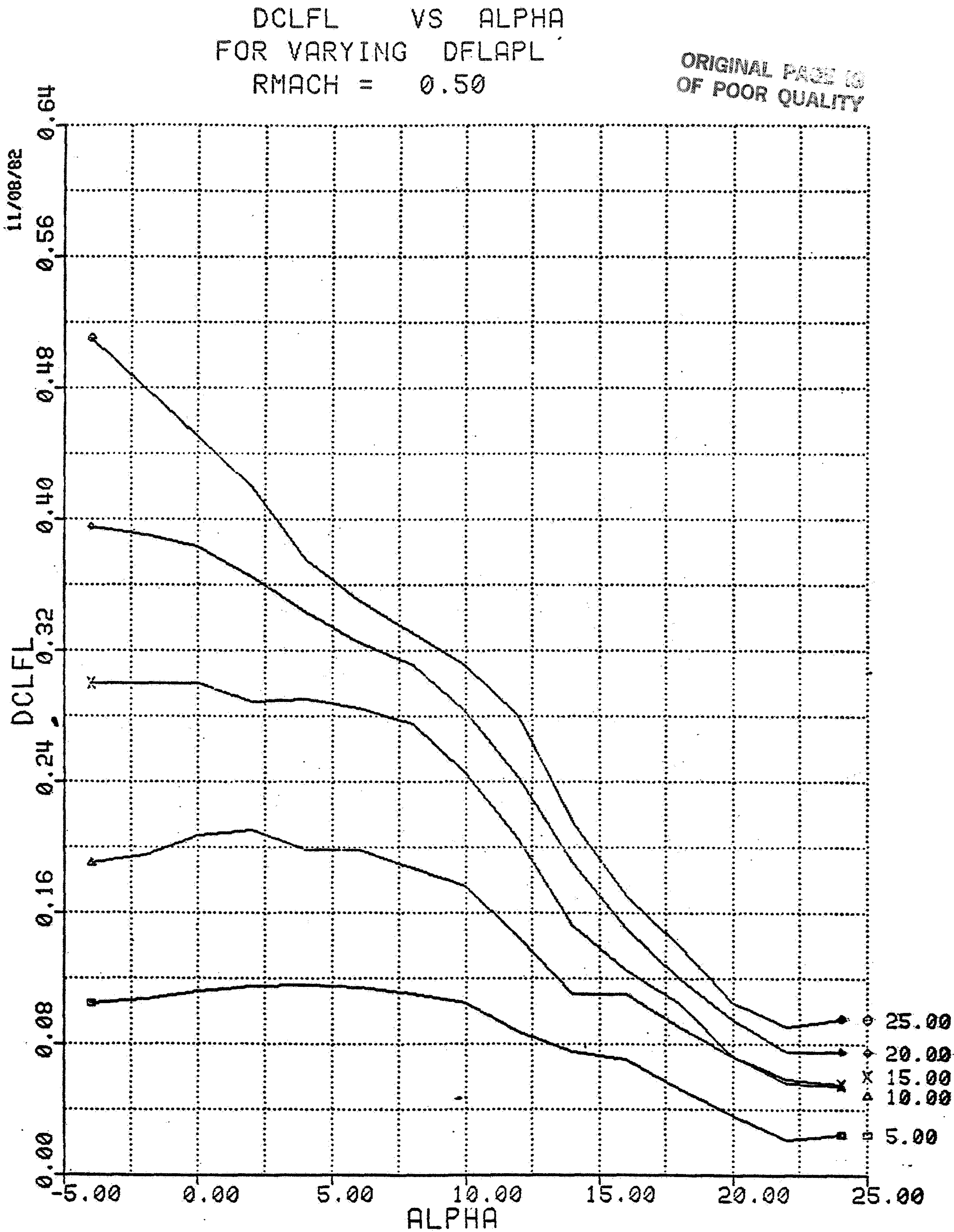

DCDSTAB VS ALP
FOR VARYING DHTD
MACH = 0.65
05/21/81
DCDSTAB
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00
ALP
12.00
8.00
4.00
0.00
-4.00
-8.00
-12.00


DCDSTAB .VS ALP
FOR VARYING DHTD
MACH = 0.80
06/21/81
DCDSTAB
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
0.00
4.00
8.00
12.00
16.00
20.00
24.00
ALP
12.00
8.00
4.00
0.00
-4.00
-8.00
-12.00

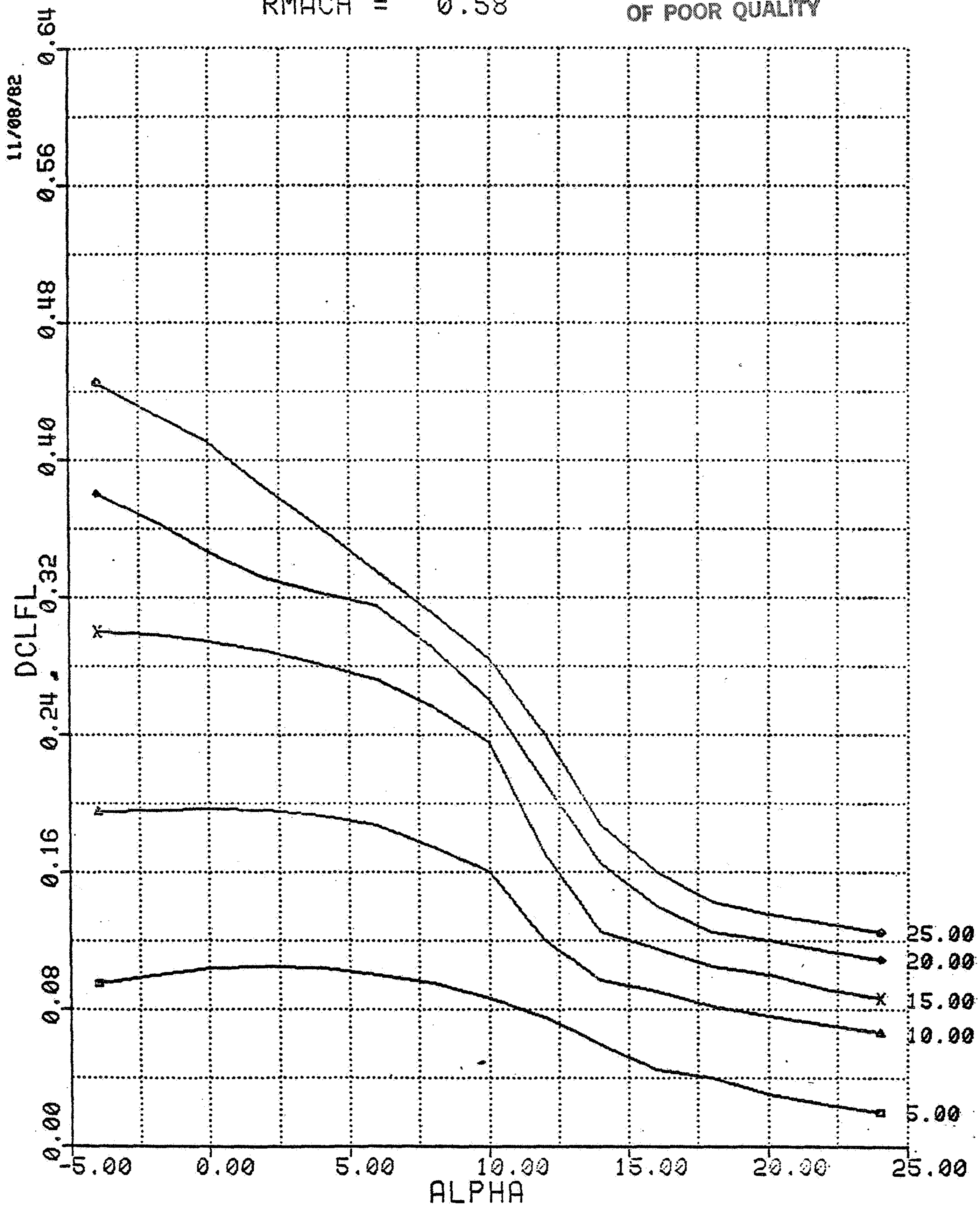

DCDSTAB VS ALP
FOR VARYING DHTD
MACH = 0.90
DCDSTAB
ALP
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
4.00
8.00
12.00
16.00
20.00
24.00
12.00
8.00
4.00
0.00
-4.00
-8.00
-12.00

DCLAL VS DAL
FOR VARYING MACH NO.




DCLFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.50
11/08/82
DCLFL
0.64
0.56
0.48
0.40
0.32
0.24
0.16
0.08
0.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA
25.00
20.00
15.00
10.00
5.00

DCLFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.58



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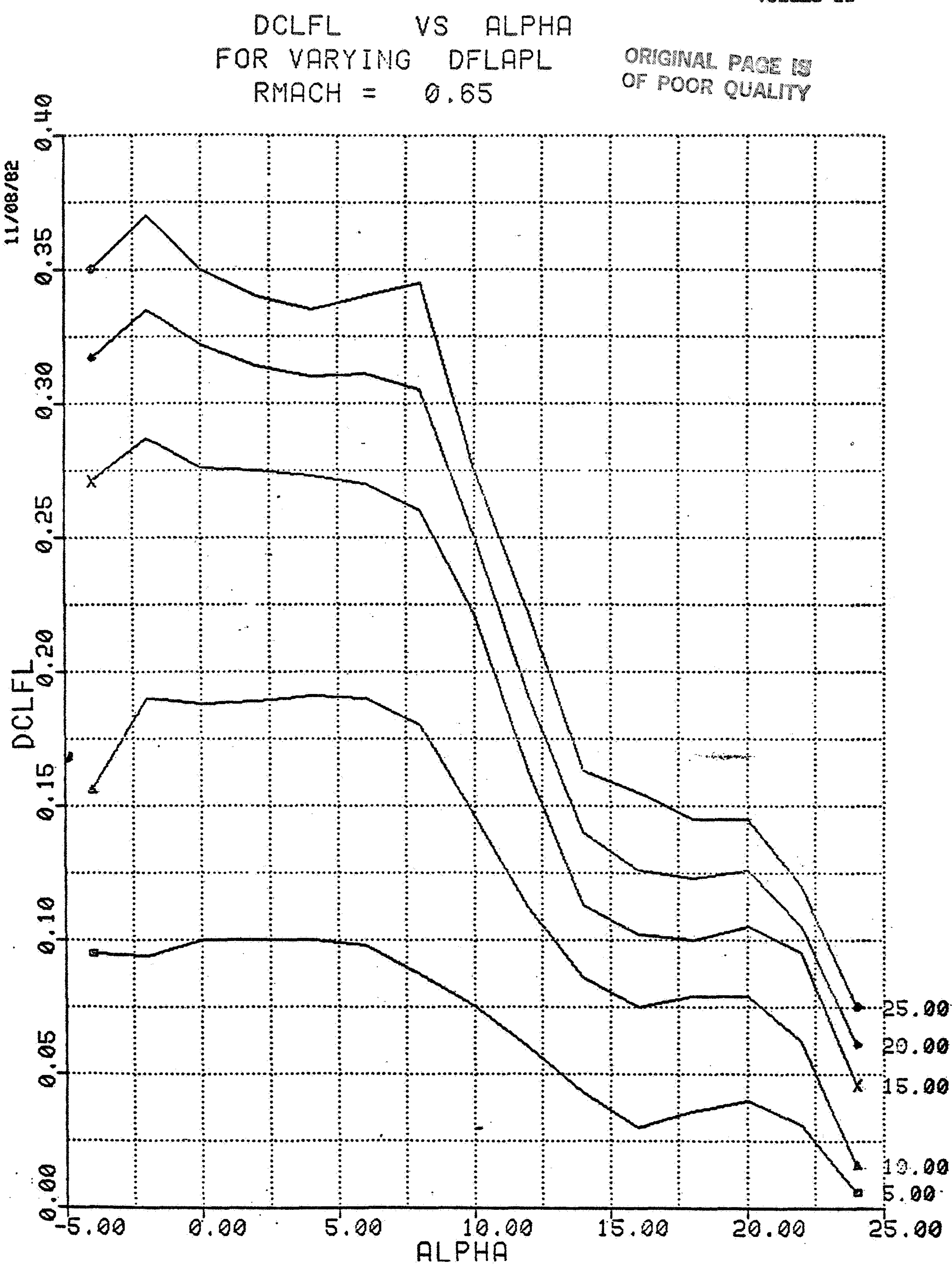
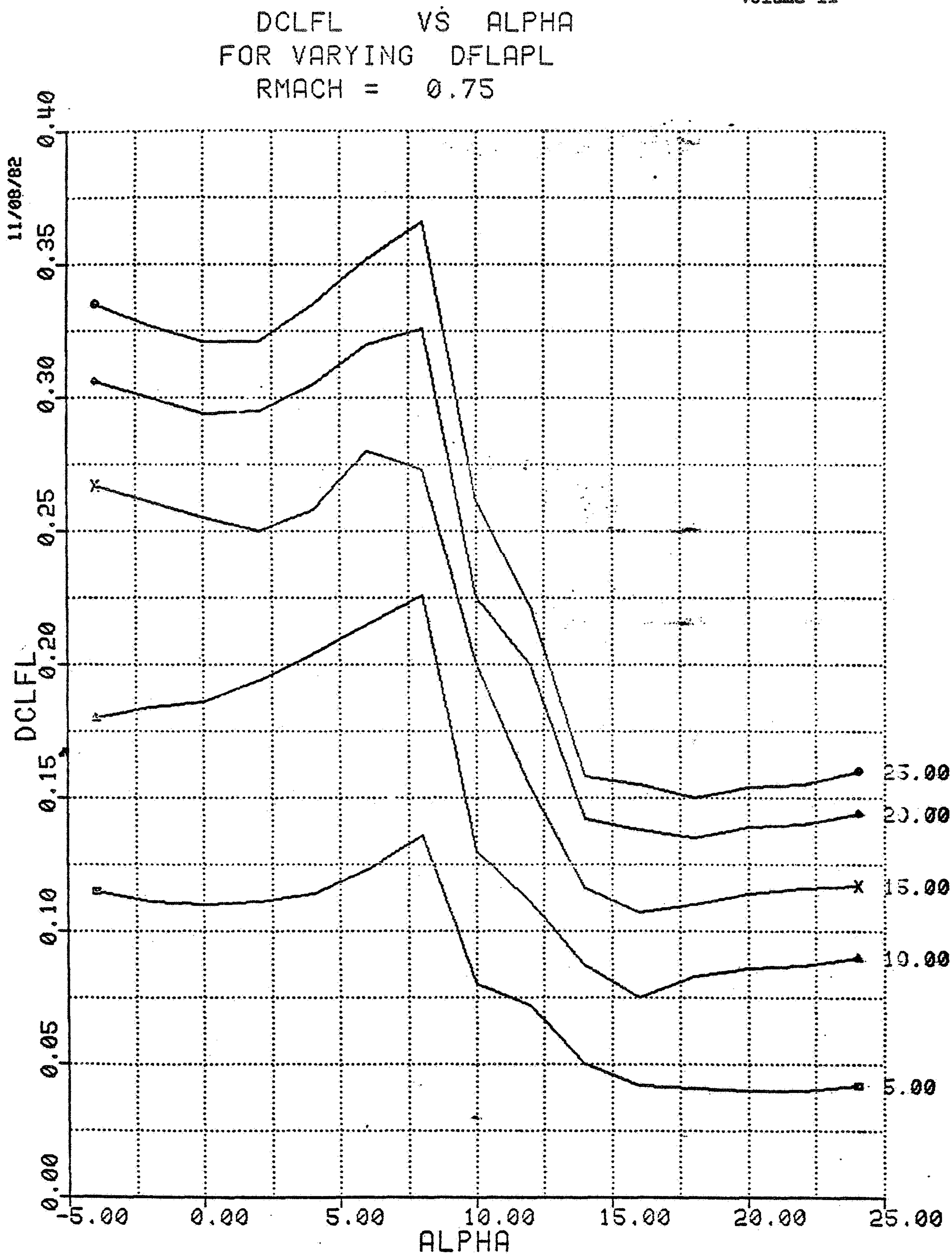
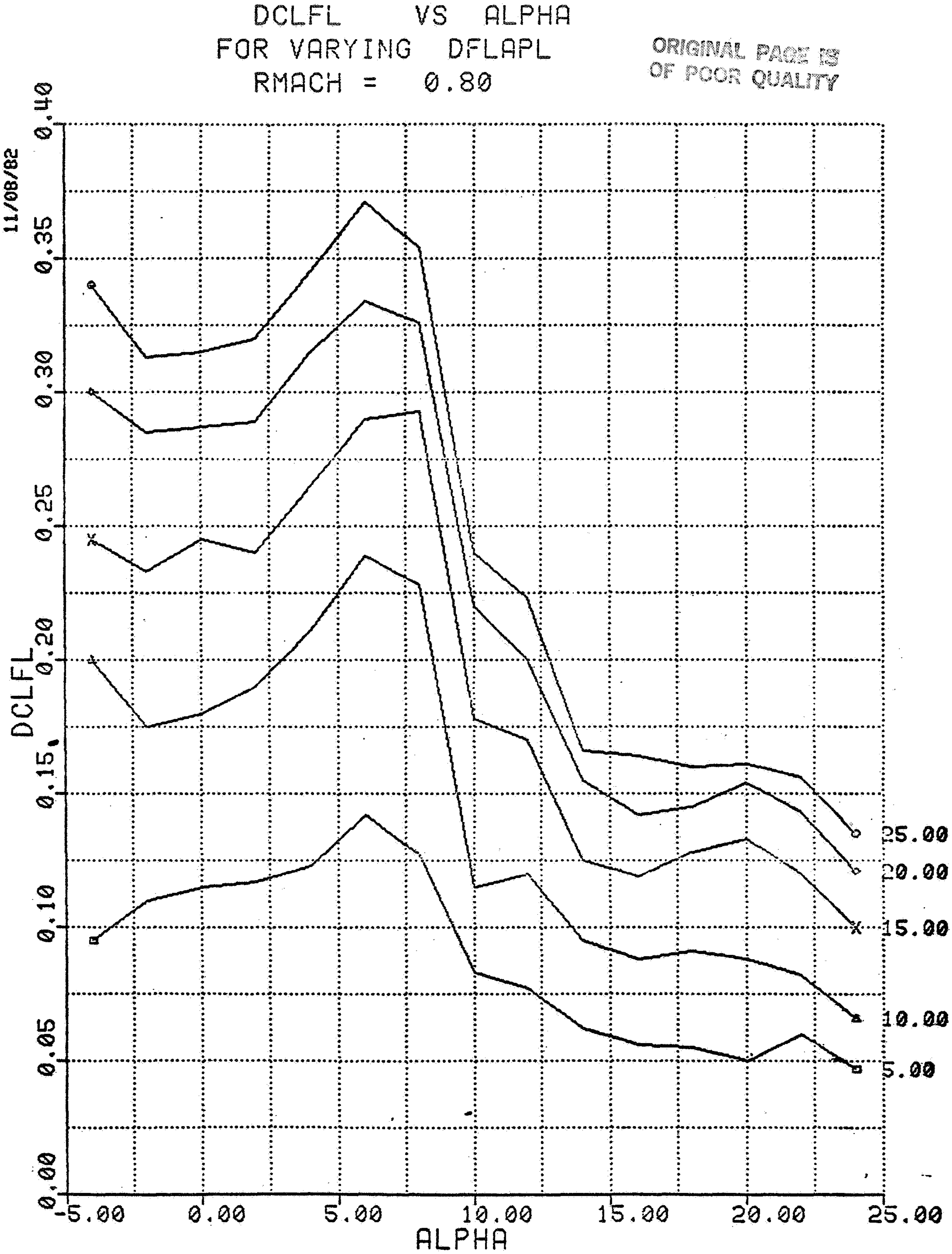



DCLFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.75
11/08/82
DCLFL
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
25.00
20.00
15.00
10.00
5.00


DCLFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.80
11/08/82
DCLFL
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
25.00
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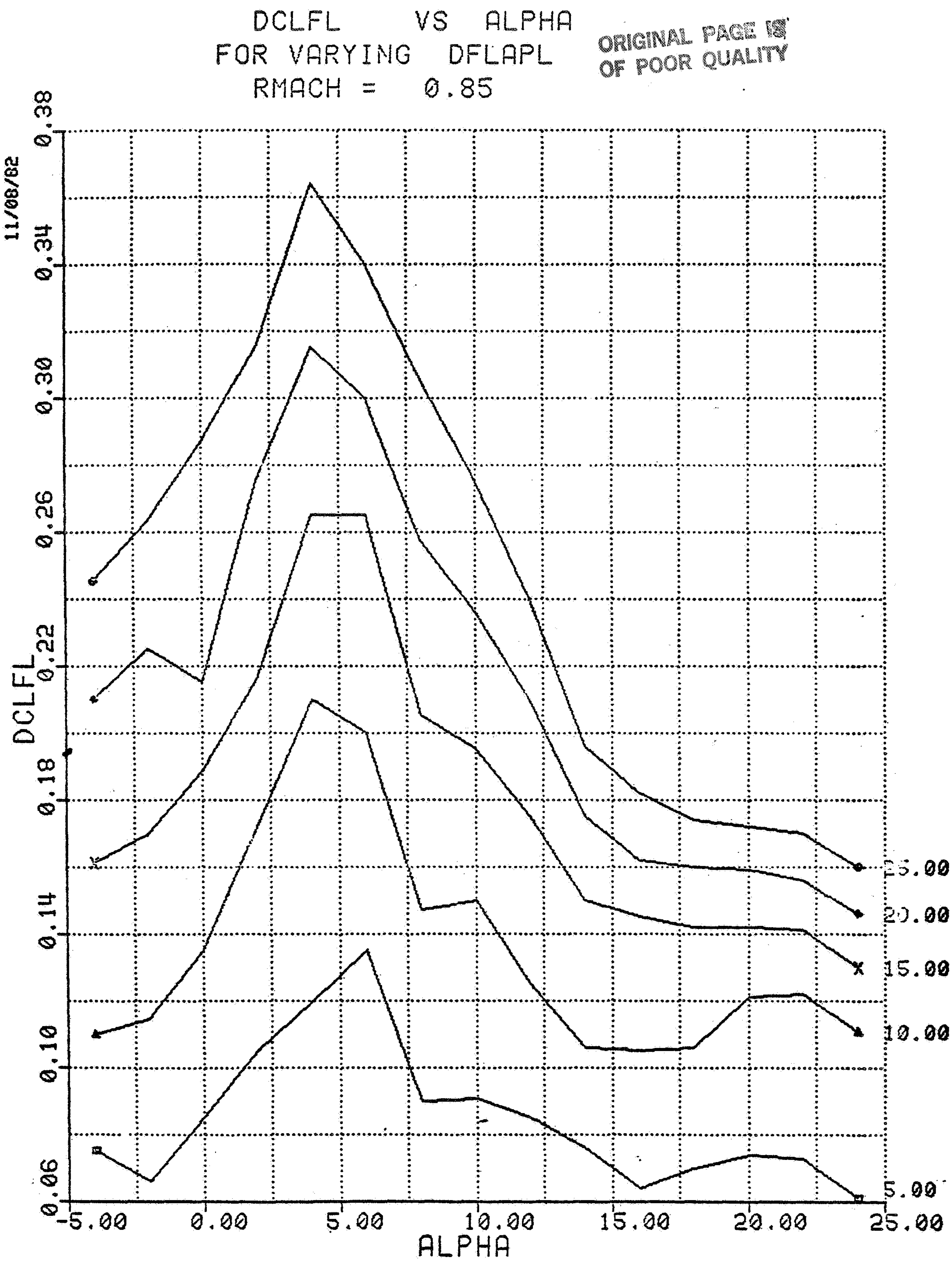
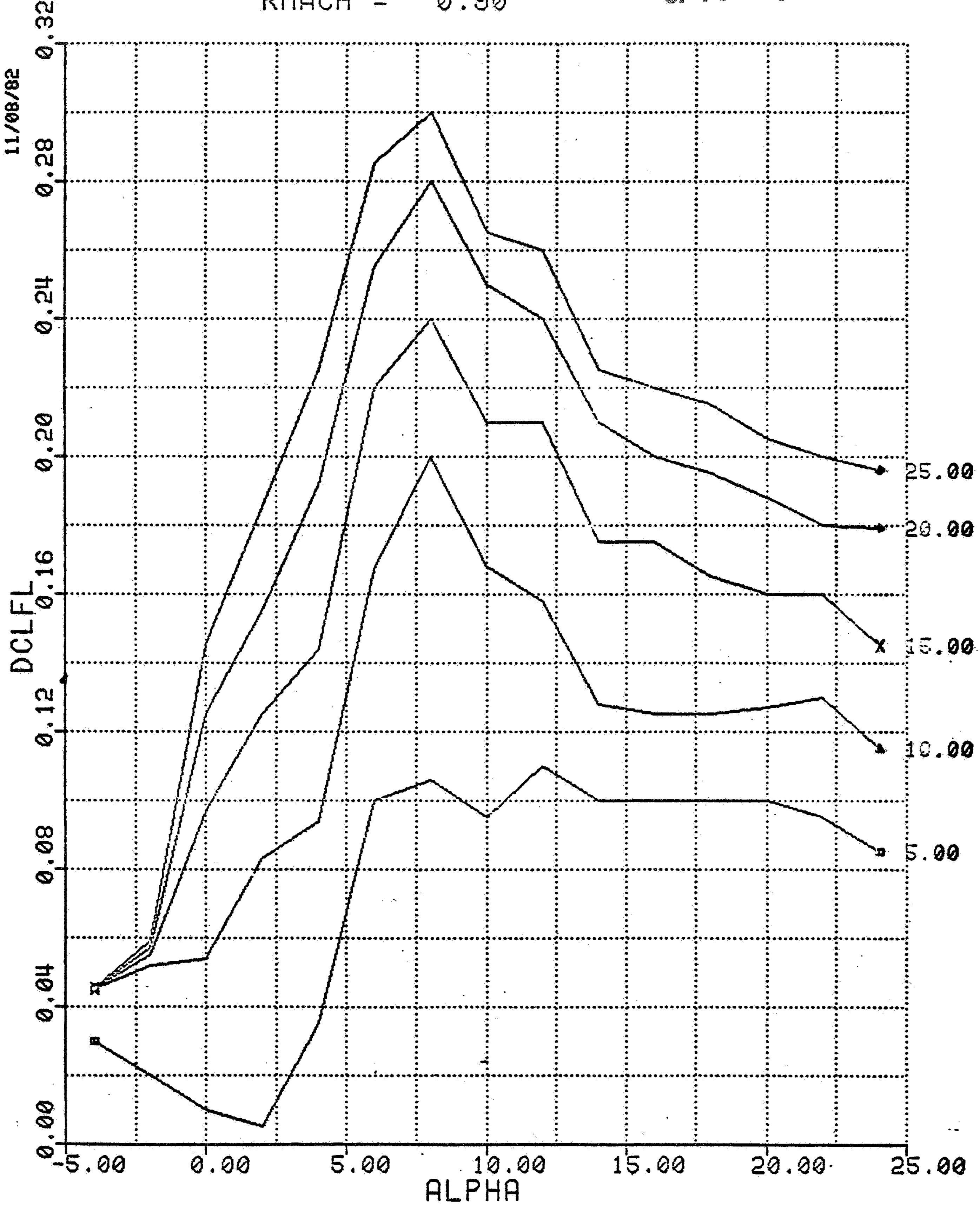
15.00
10.00
5.00


DCLFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.85
11/08/82
DCLFL
0.06
0.10
0.14
0.18
0.22
0.26
0.30
0.34
0.38
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
25.00
20.00
15.00
10.00
5.00

DCLFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.90



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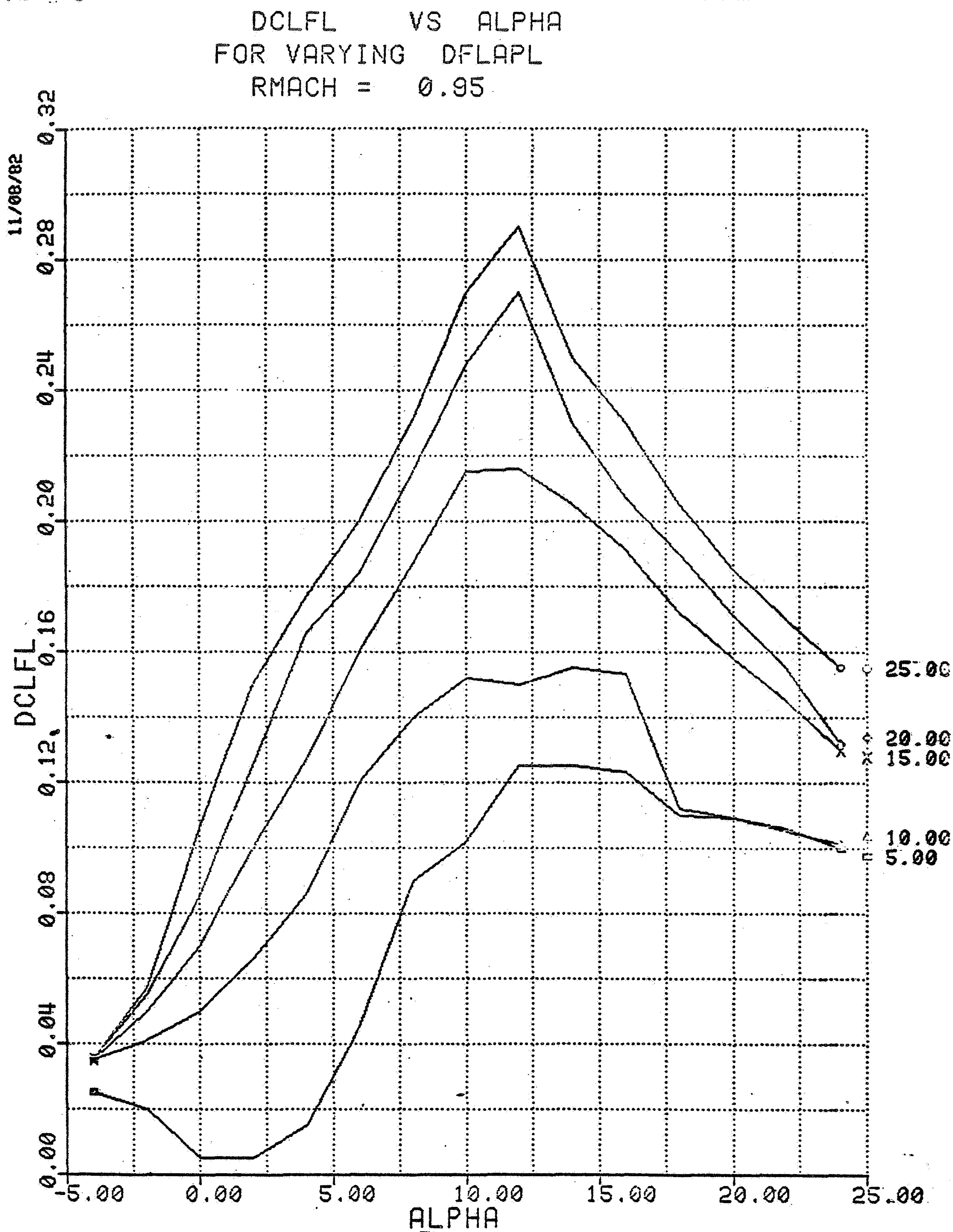
DCLFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.95
11/08/82
0.32
0.28
0.24
0.20
0.16
0.12
0.08
0.04
0.00
DCLFL
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA
25.00
20.00
15.00
10.00
5.00

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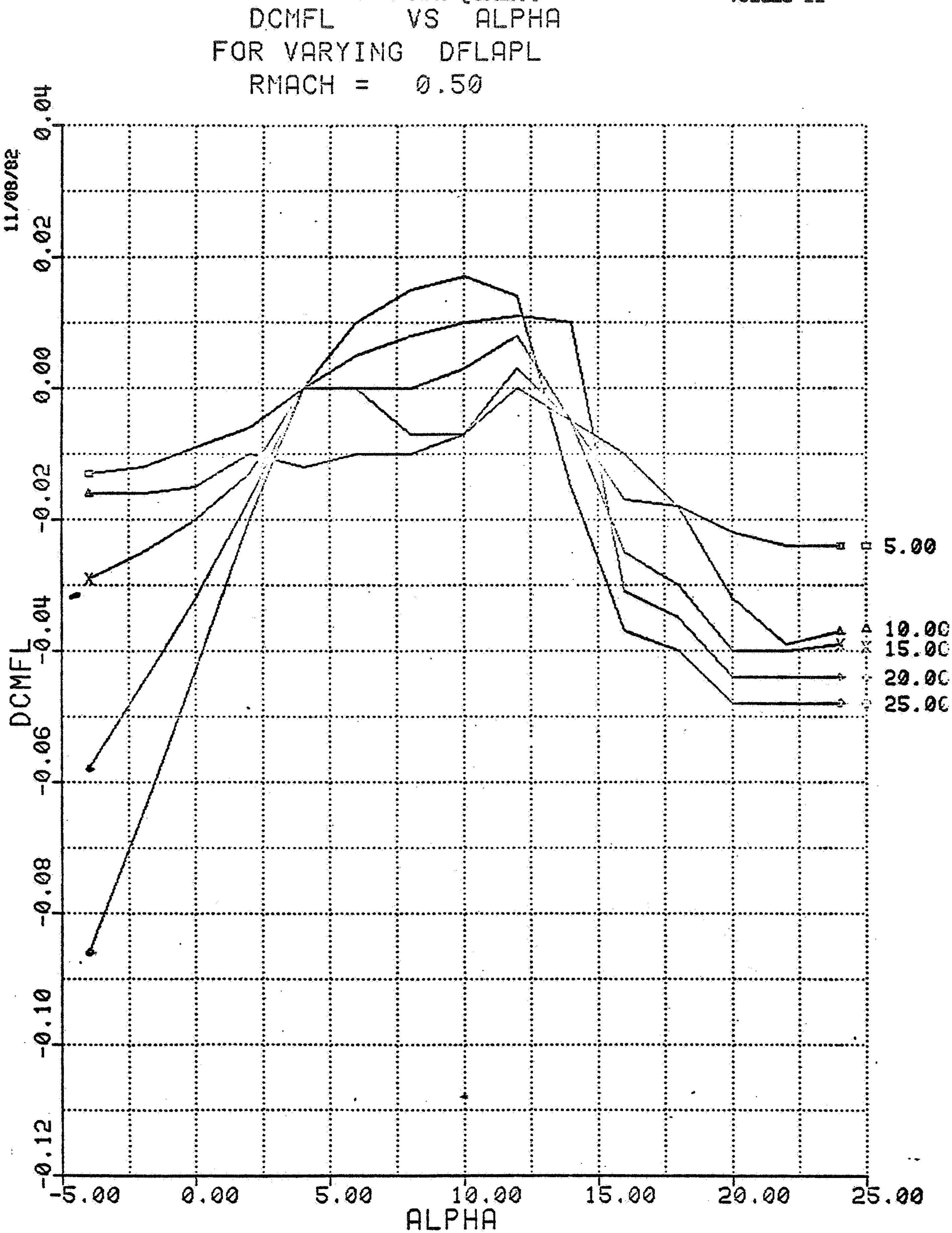
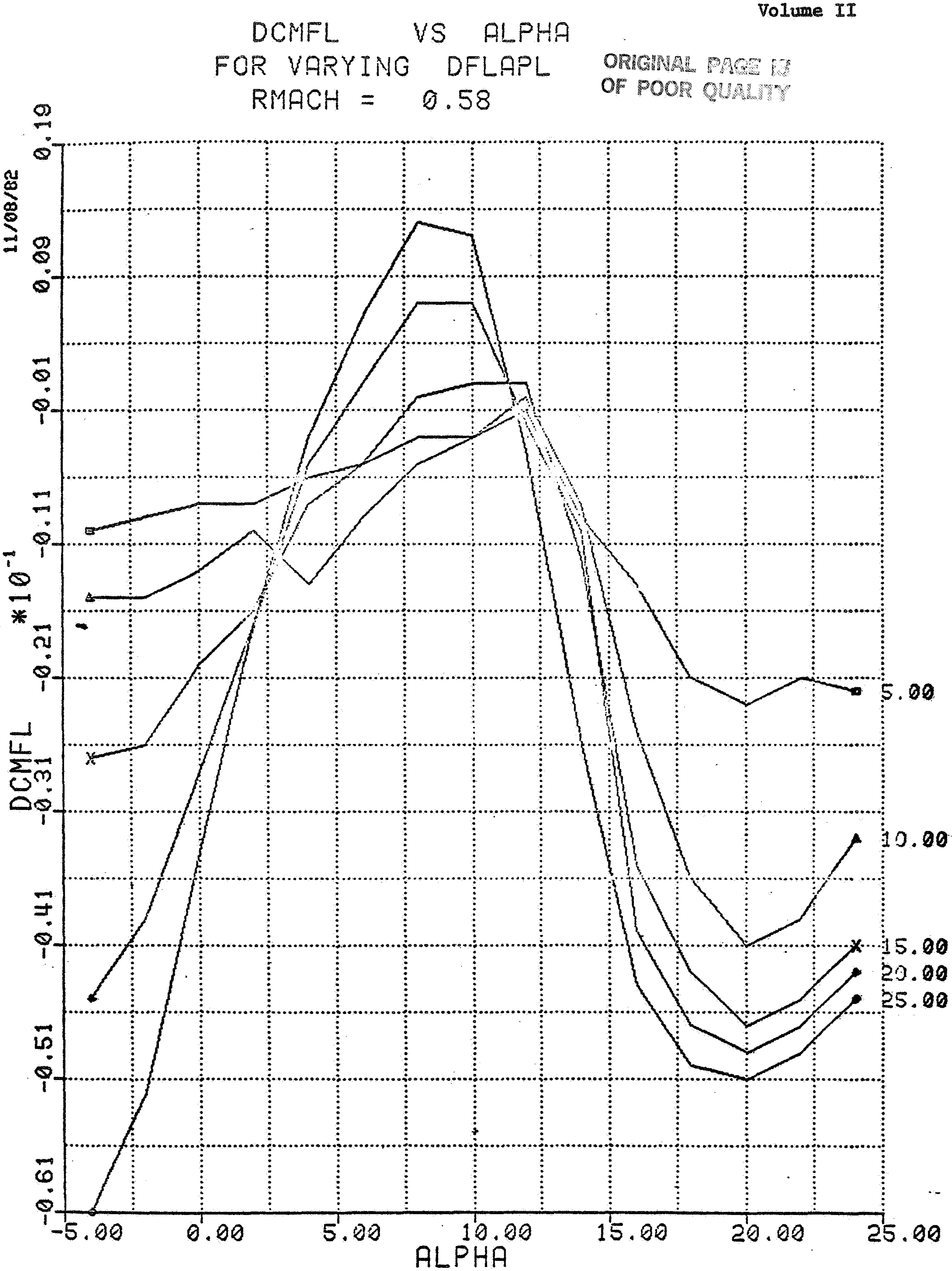
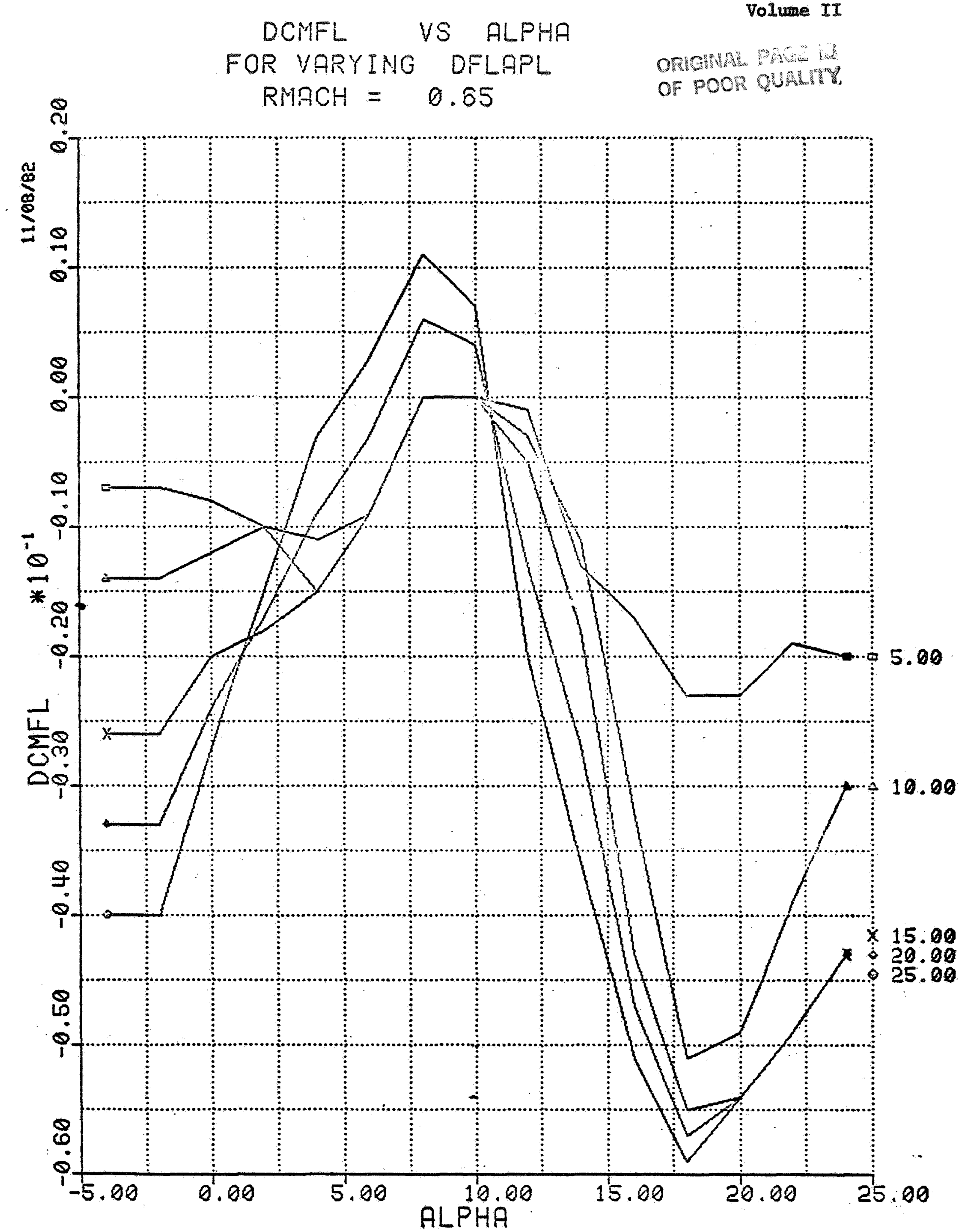



DCMFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.58
11/08/82
DCMFL *10^-1
0.19
0.09
-0.01
-0.11
-0.21
-0.31
-0.41
-0.51
-0.61
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALPHA
5.00
10.00
15.00
20.00
25.00


DCMFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.65
11/08/82
DCMFL *10⁻¹
ALPHA
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
5.00
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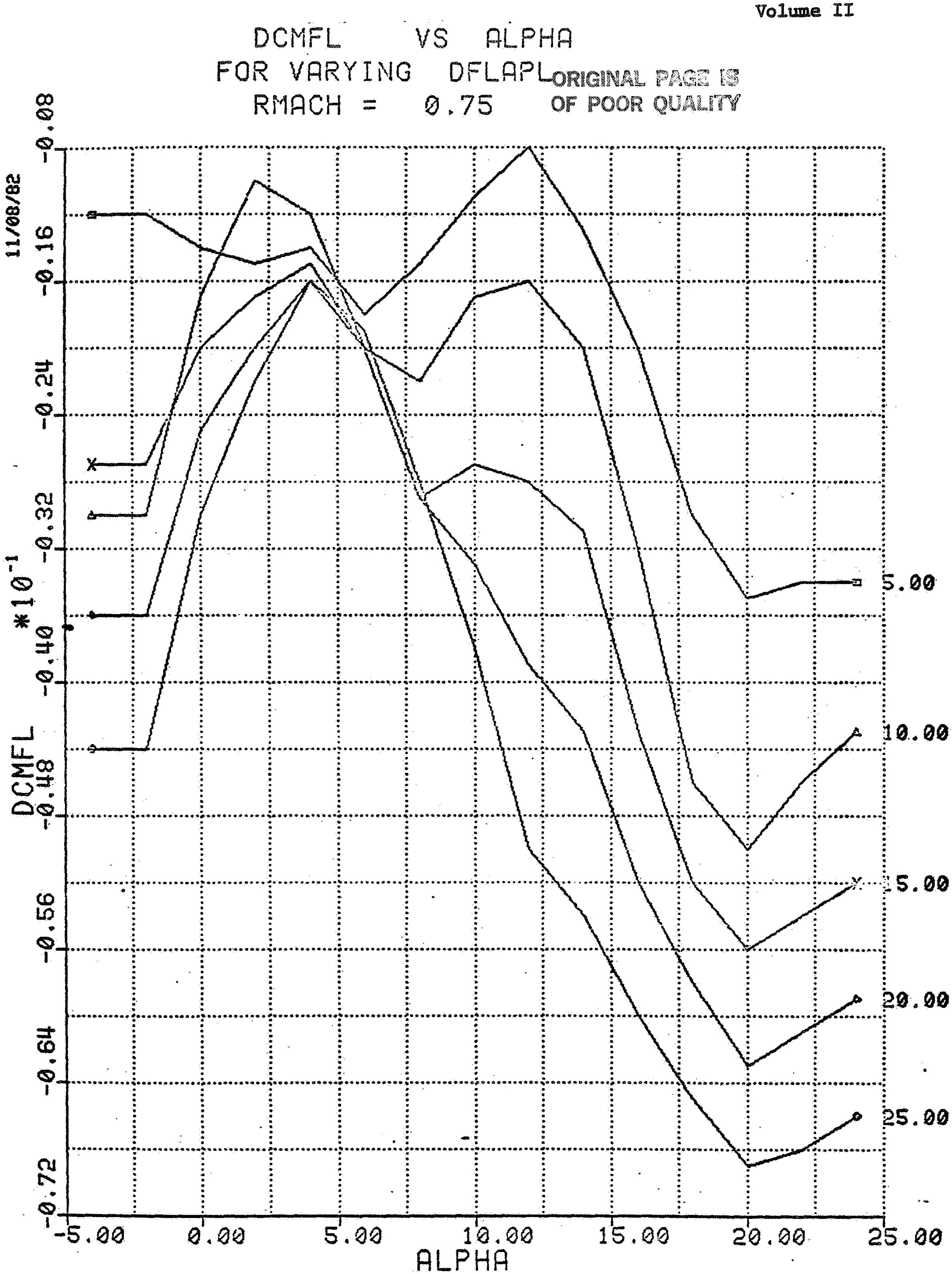
15.00
20.00
25.00


DCMFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.75
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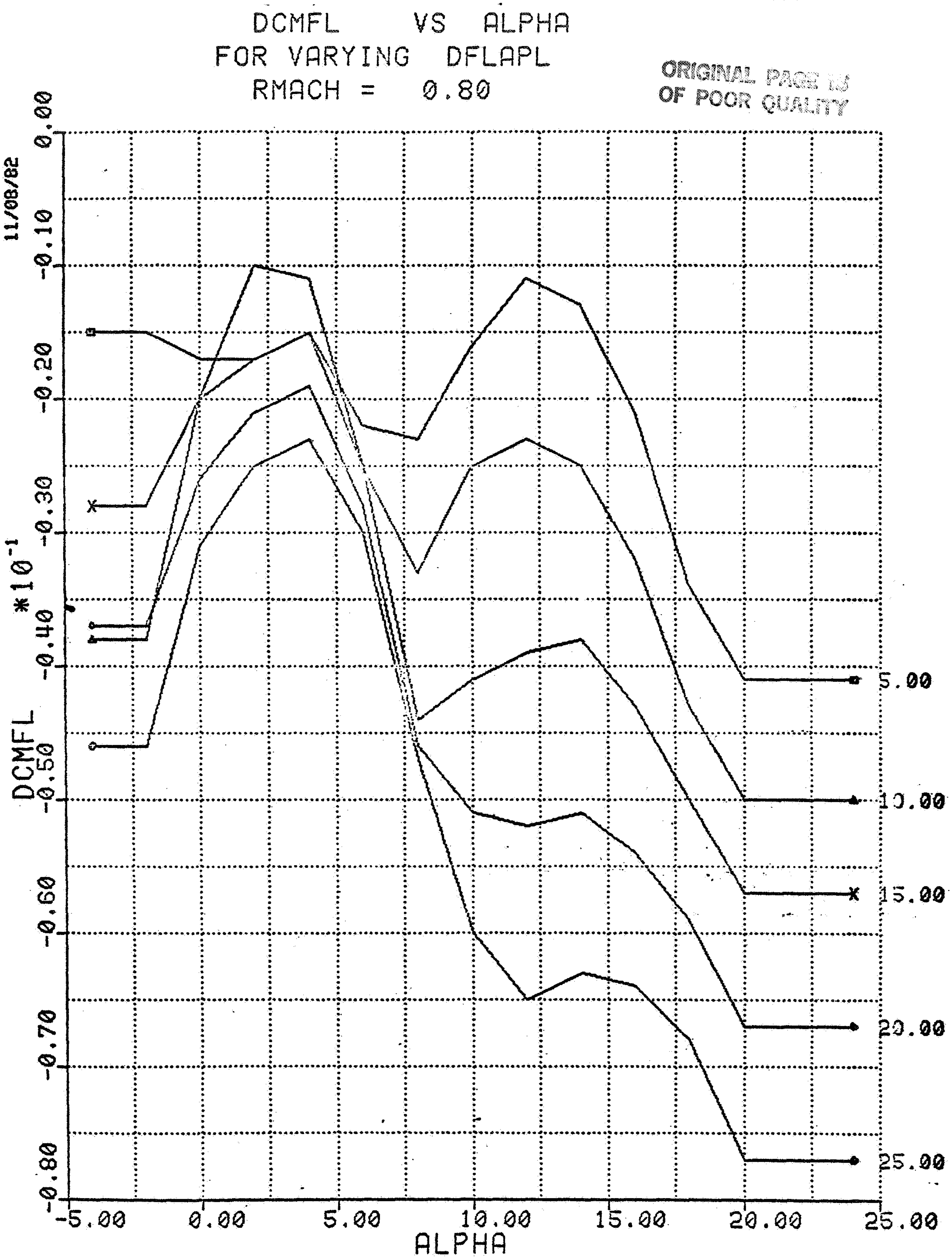
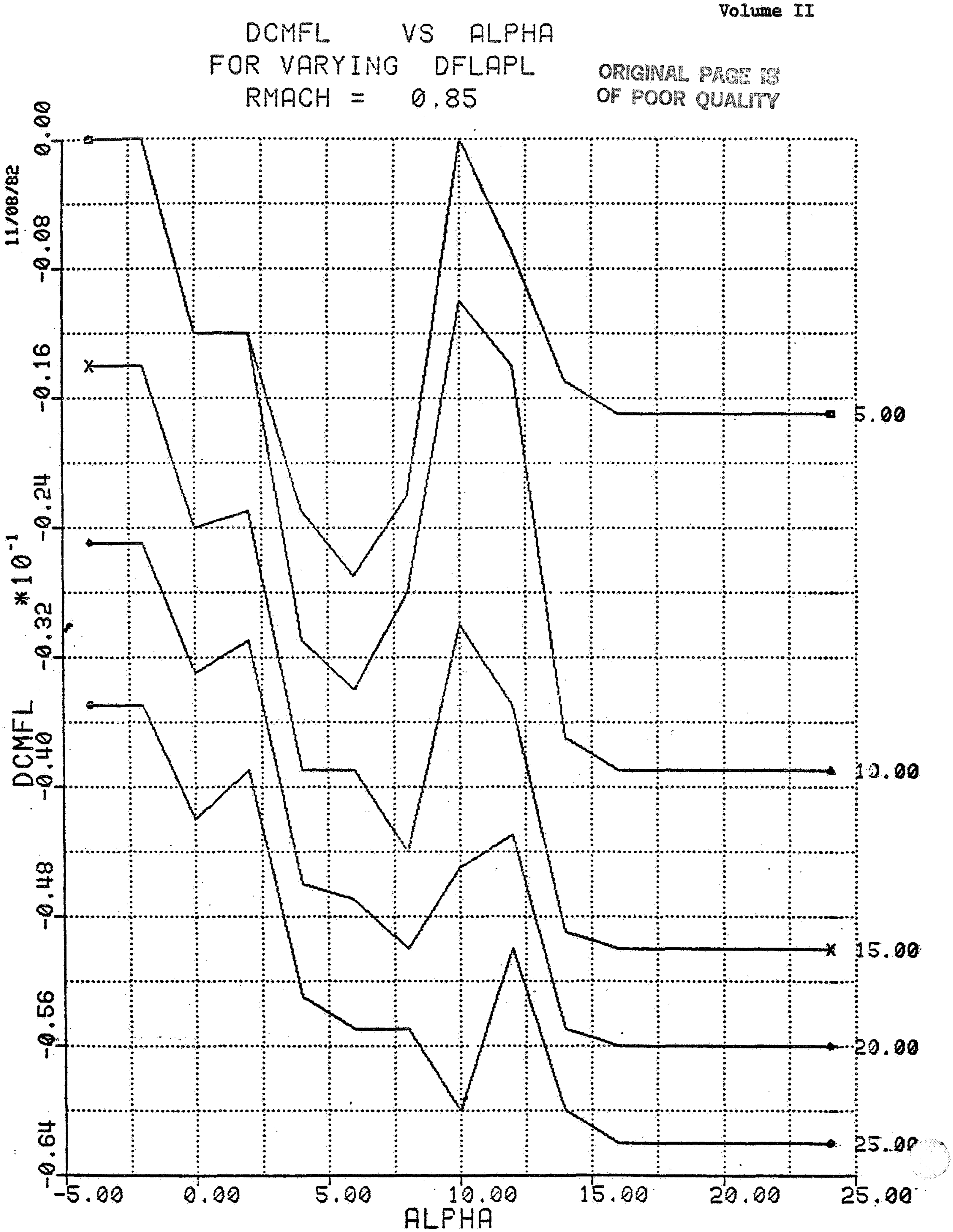
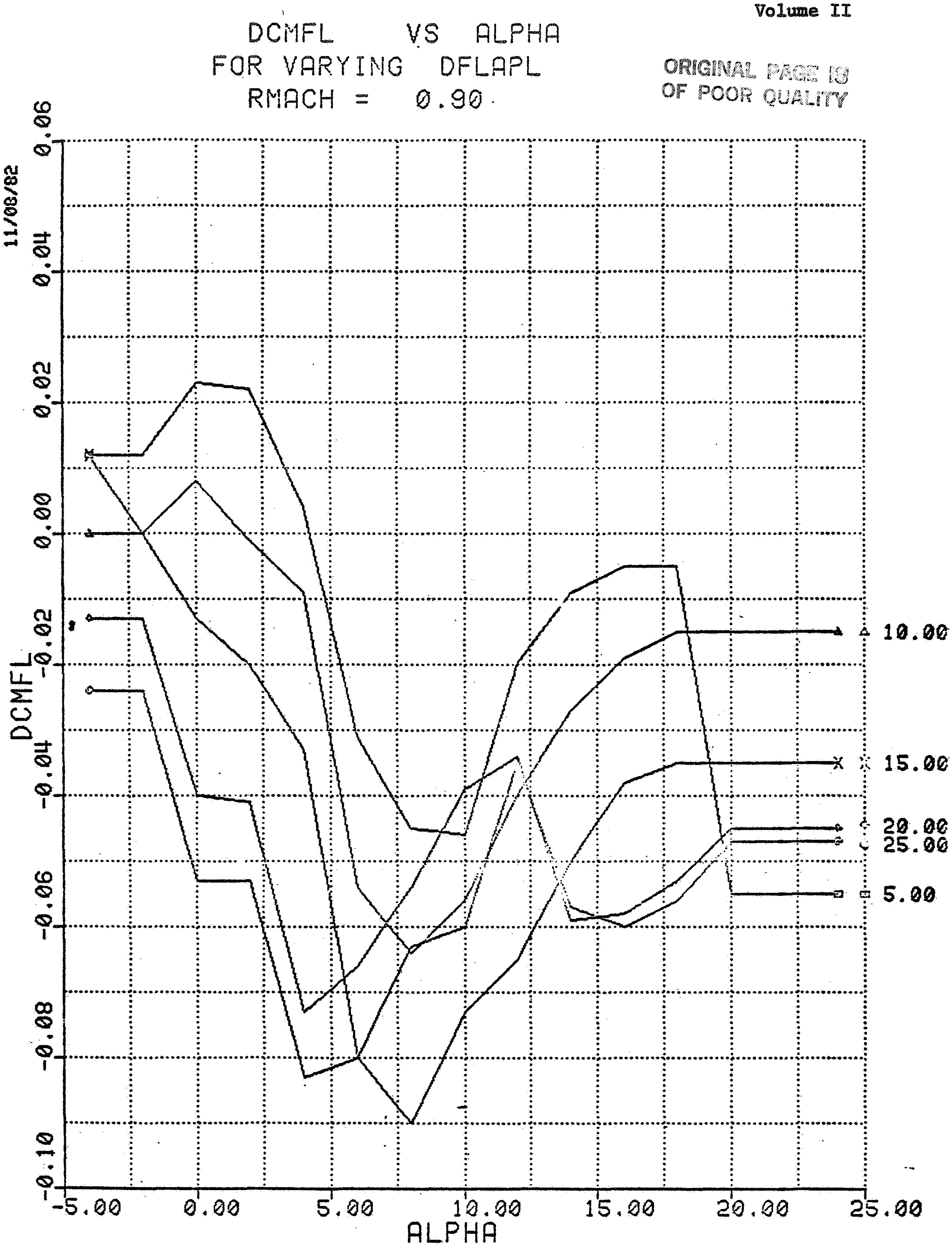
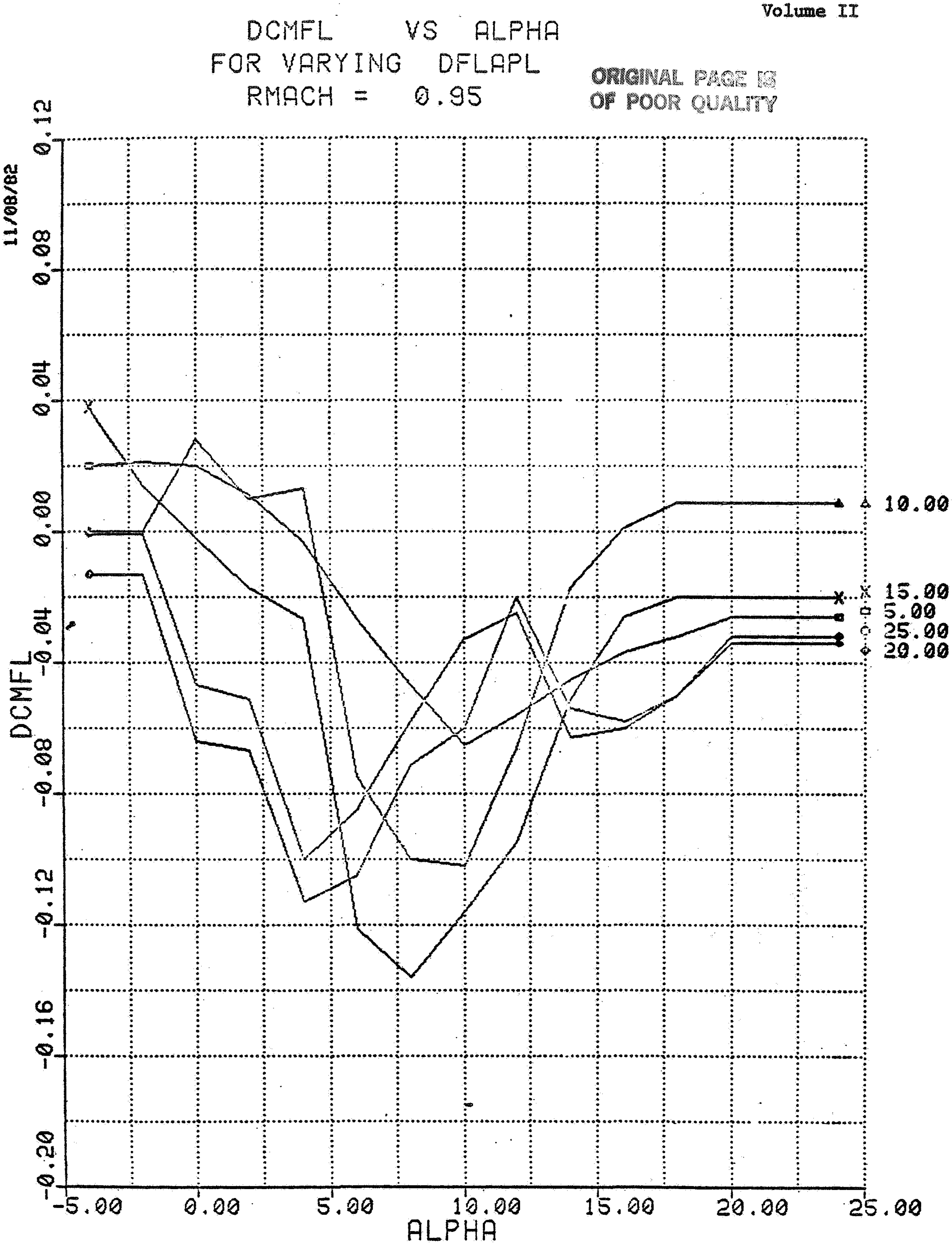
11/08/82
DCMFL *10⁻¹
-0.08
-0.16
-0.24
-0.32
-0.40
-0.48
-0.56
-0.64
-0.72
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
5.00
10.00
15.00
20.00
25.00


DCMFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.80
11/08/82
DCMFL *10^-1
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-0.70
-0.80
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
5.00
10.00
15.00
20.00
25.00


DCMFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.85
ORIGINAL PAGE IS
OF POOR QUALITY
11/08/82
DCMFL *10^-1
0.00
-0.08
-0.16
-0.24
-0.32
-0.40
-0.48
-0.56
-0.64
ALPHA
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
5.00
10.00
15.00
20.00
25.00


DCMFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.90
11/08/82
DCMFL
ALPHA
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
10.00
15.00
20.00
25.00
5.00


DCMFL VS ALPHA
FOR VARYING DFLAPL
RMACH = 0.95
11/08/82
DCMFL
ALPHA
0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
-0.16
-0.20
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
10.00
15.00
5.00
25.00
20.00

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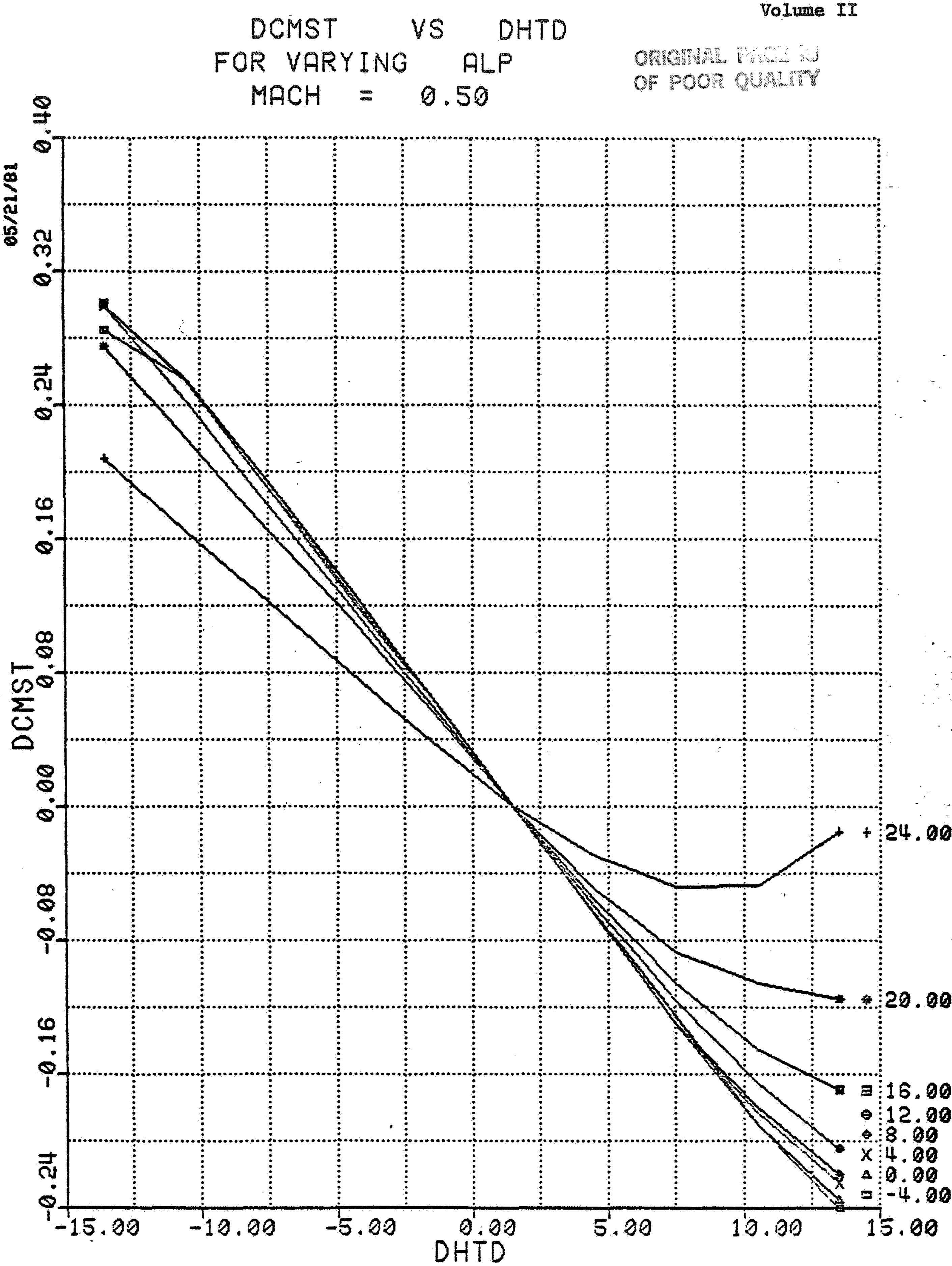

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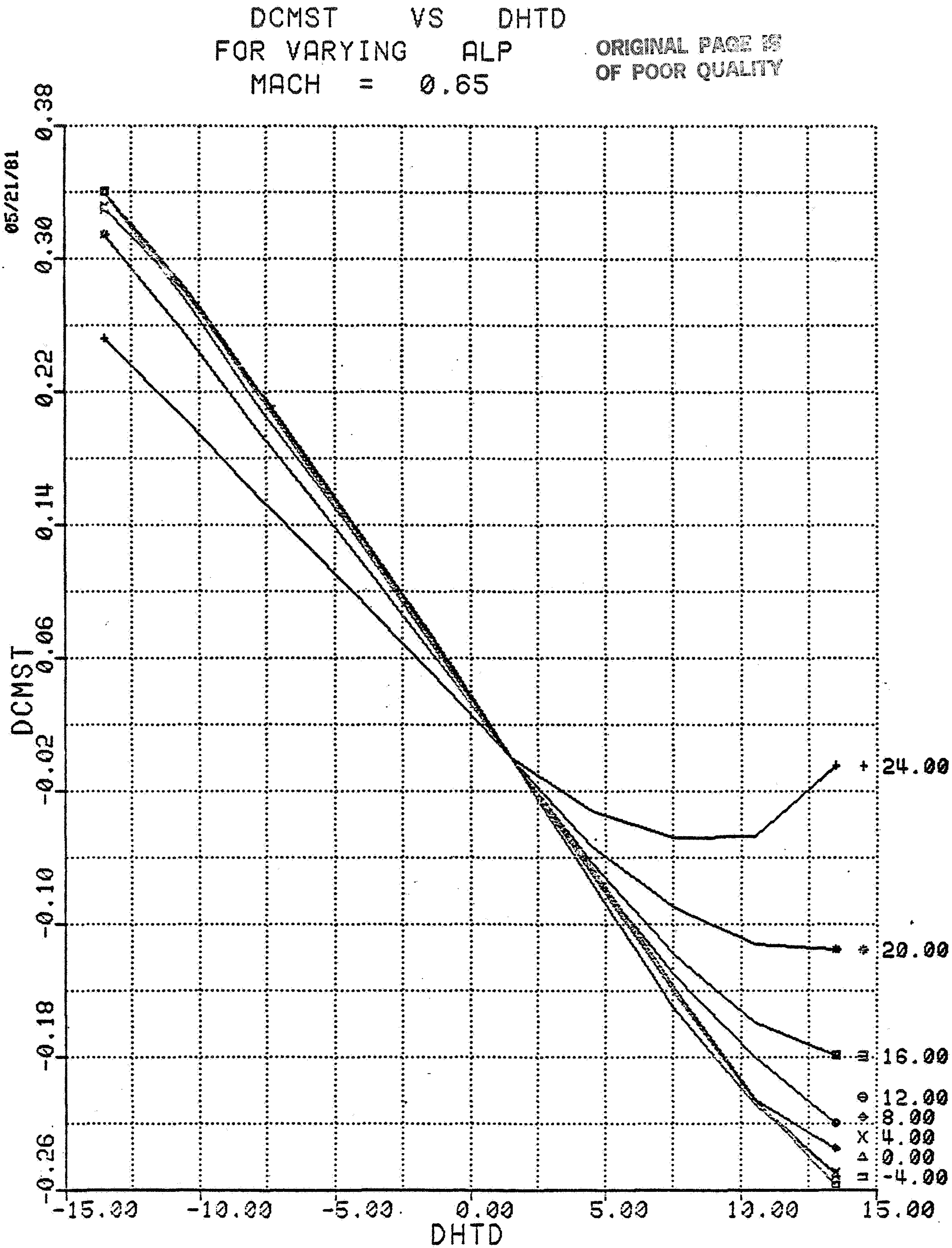

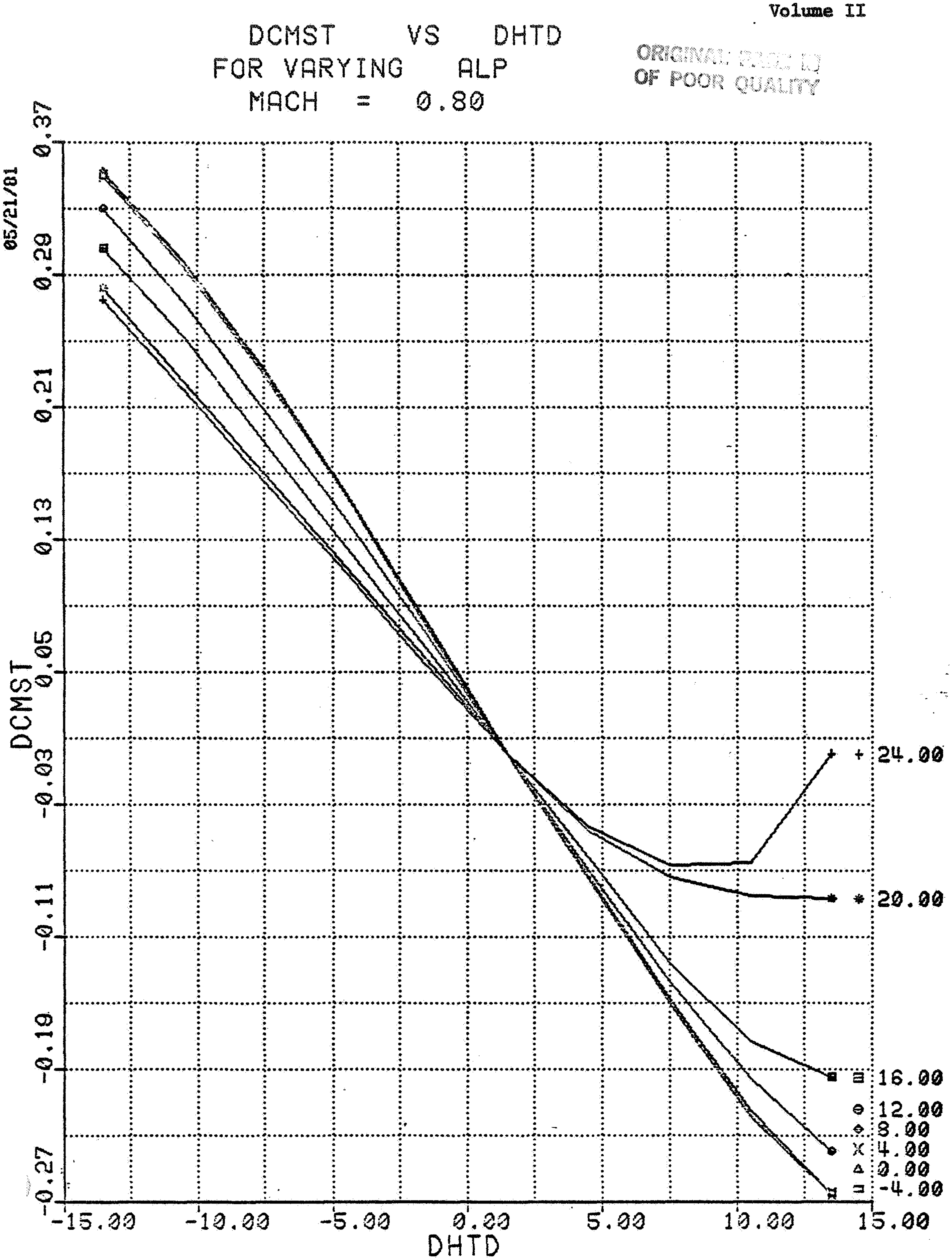
DCMST VS DHTD
FOR VARYING ALP
MACH = 0.80
05/21/81
DCMST
DHTD
0.37
0.29
0.21
0.13
0.05
-0.03
-0.11
-0.19
-0.27
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
24.00
20.00
16.00
12.00
8.00
4.00
0.00
-4.00

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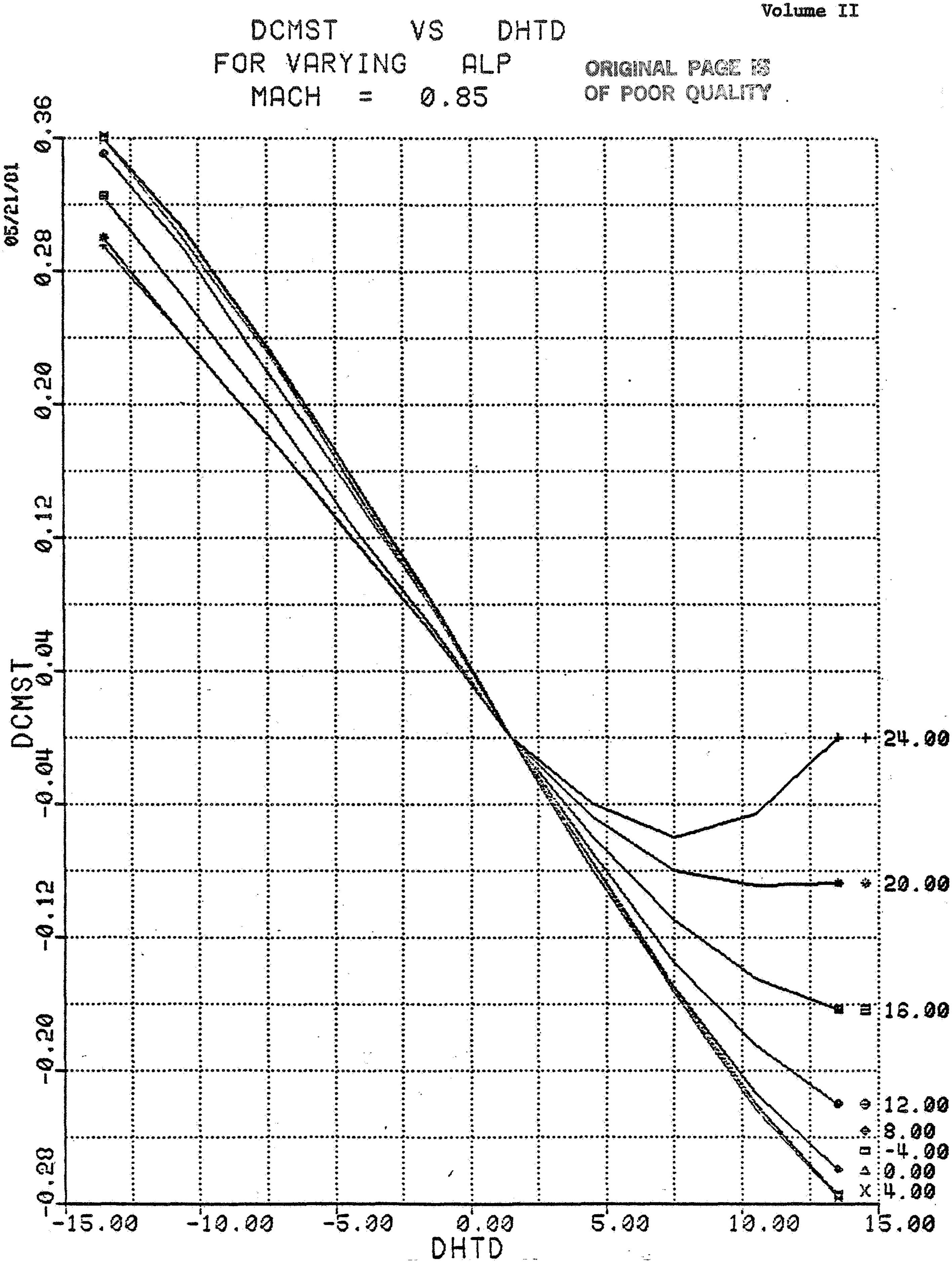
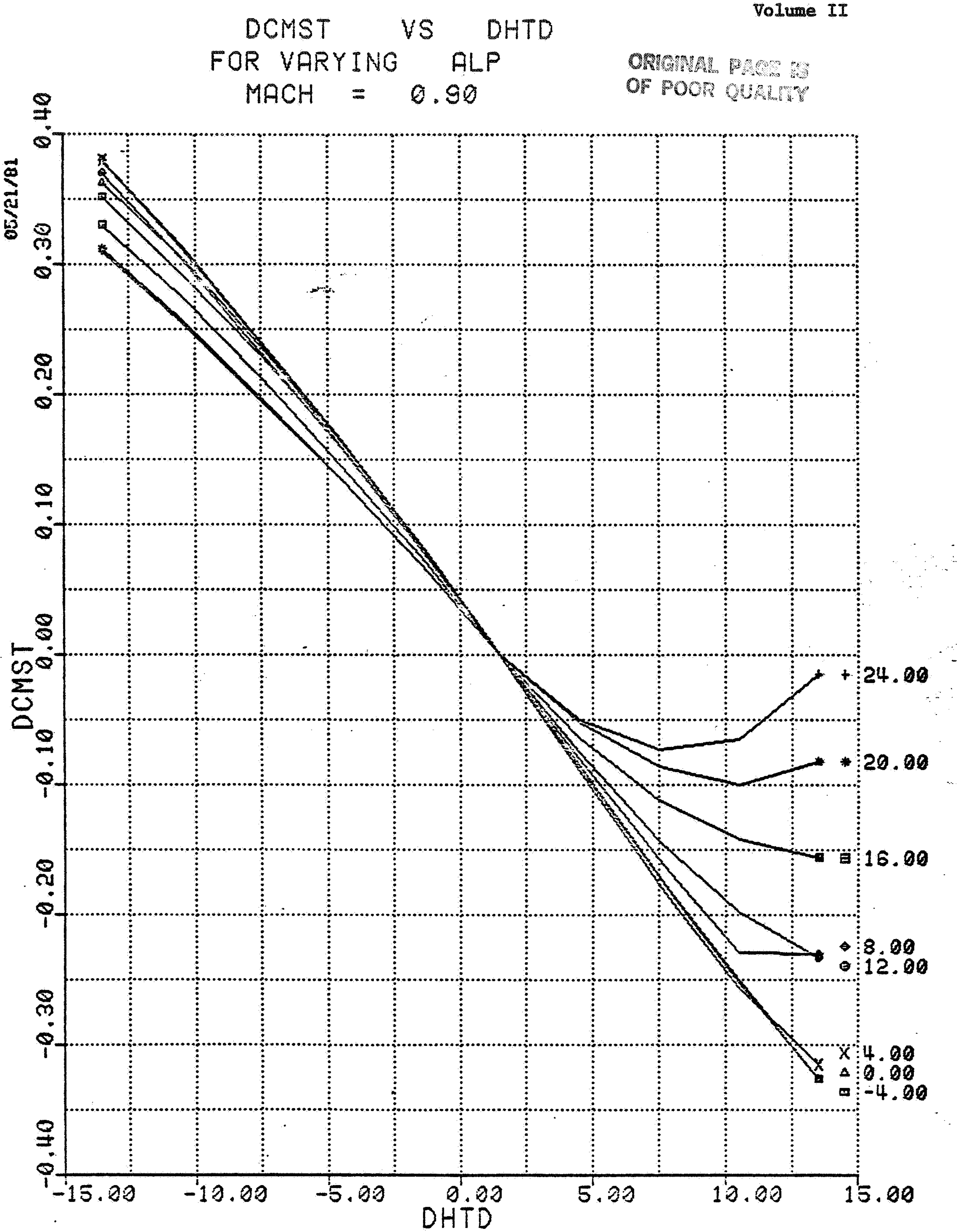
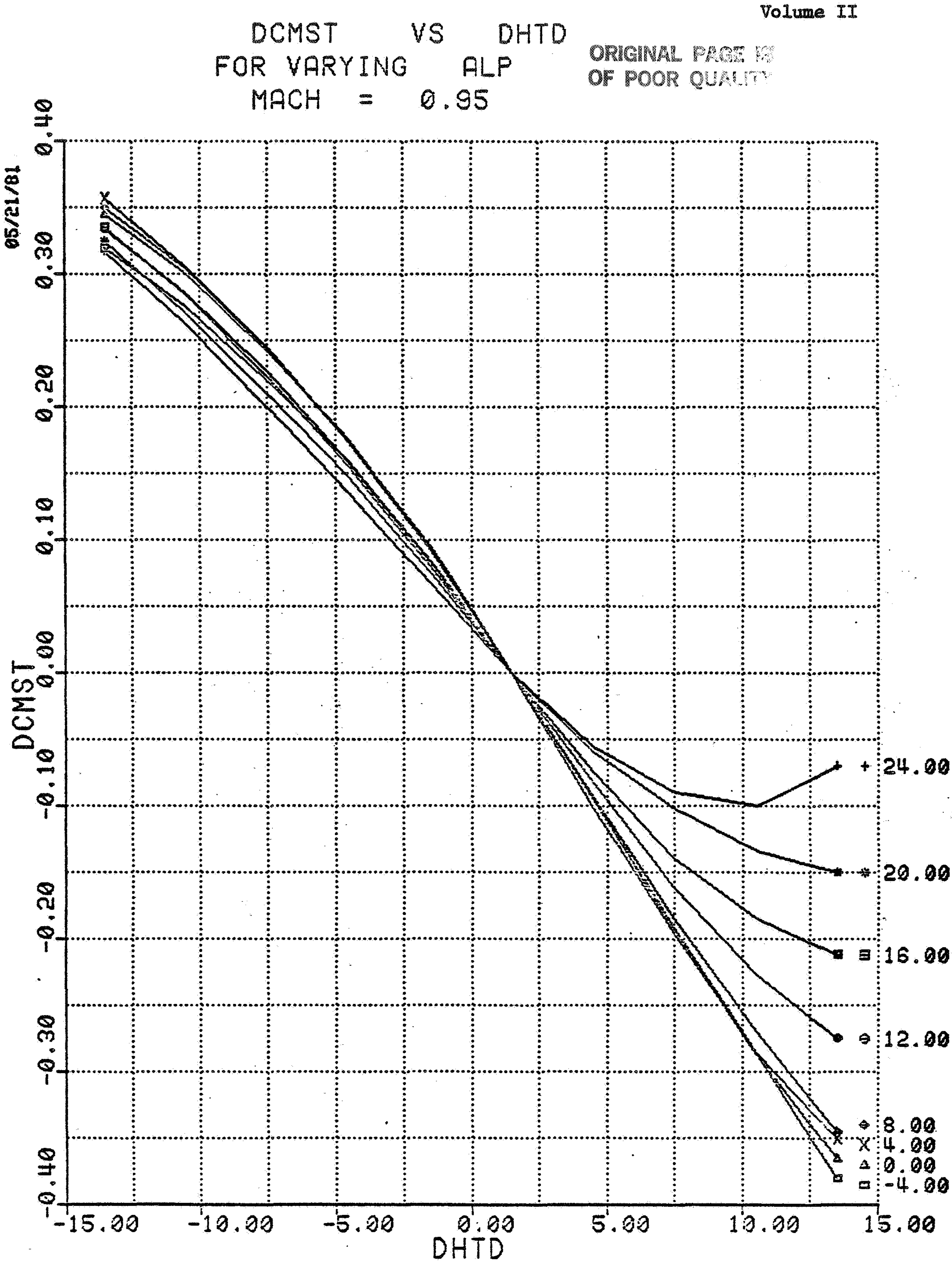
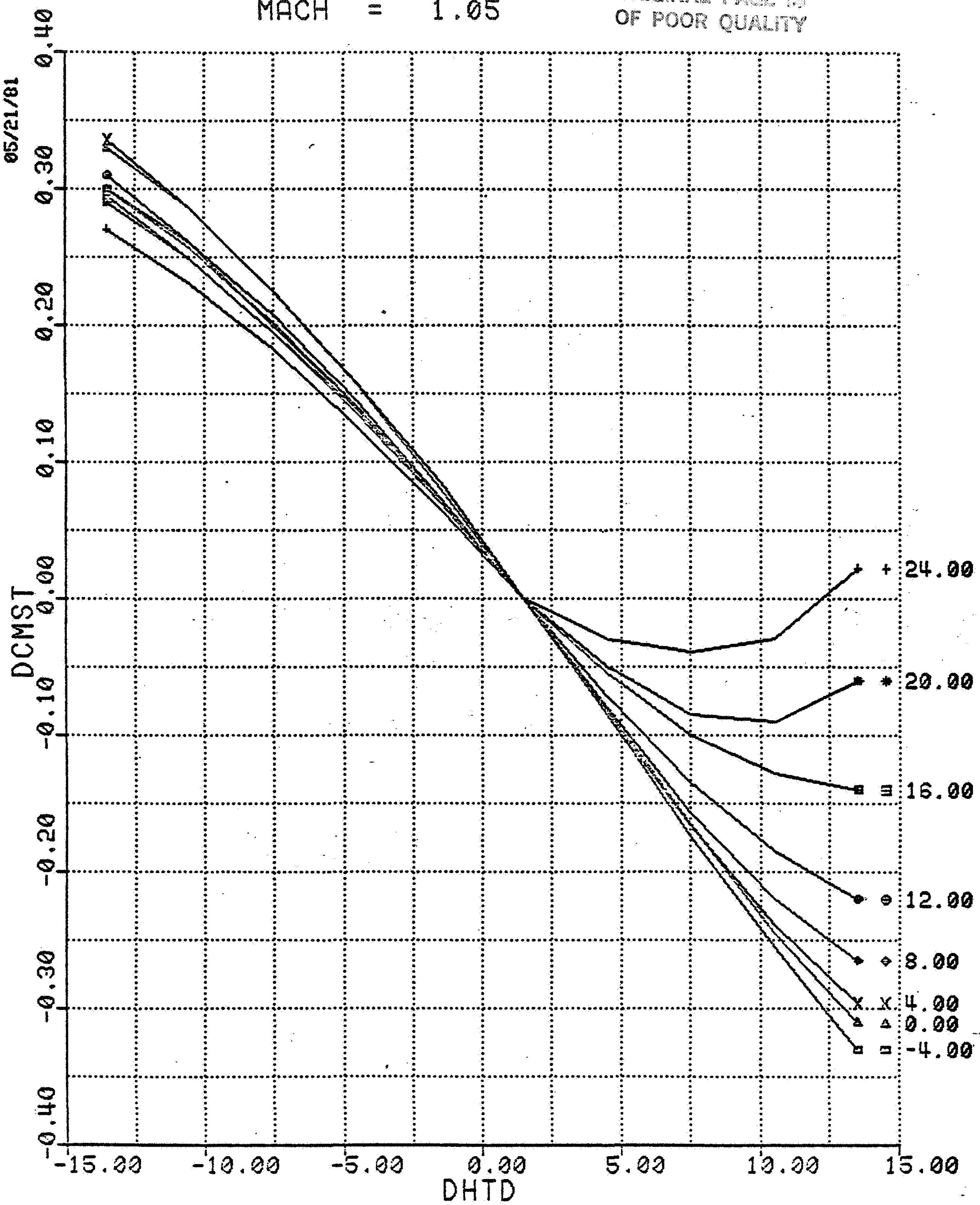
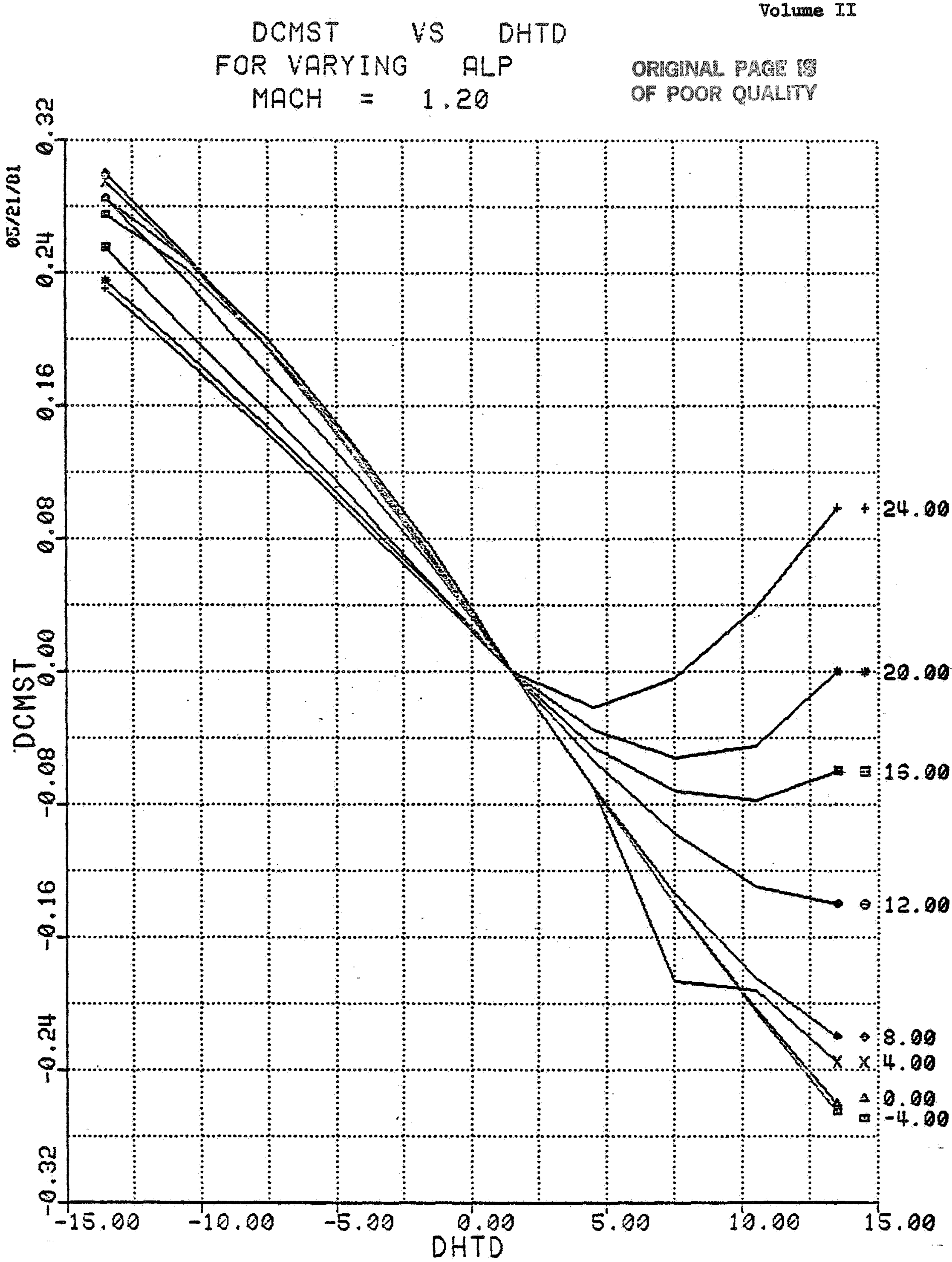


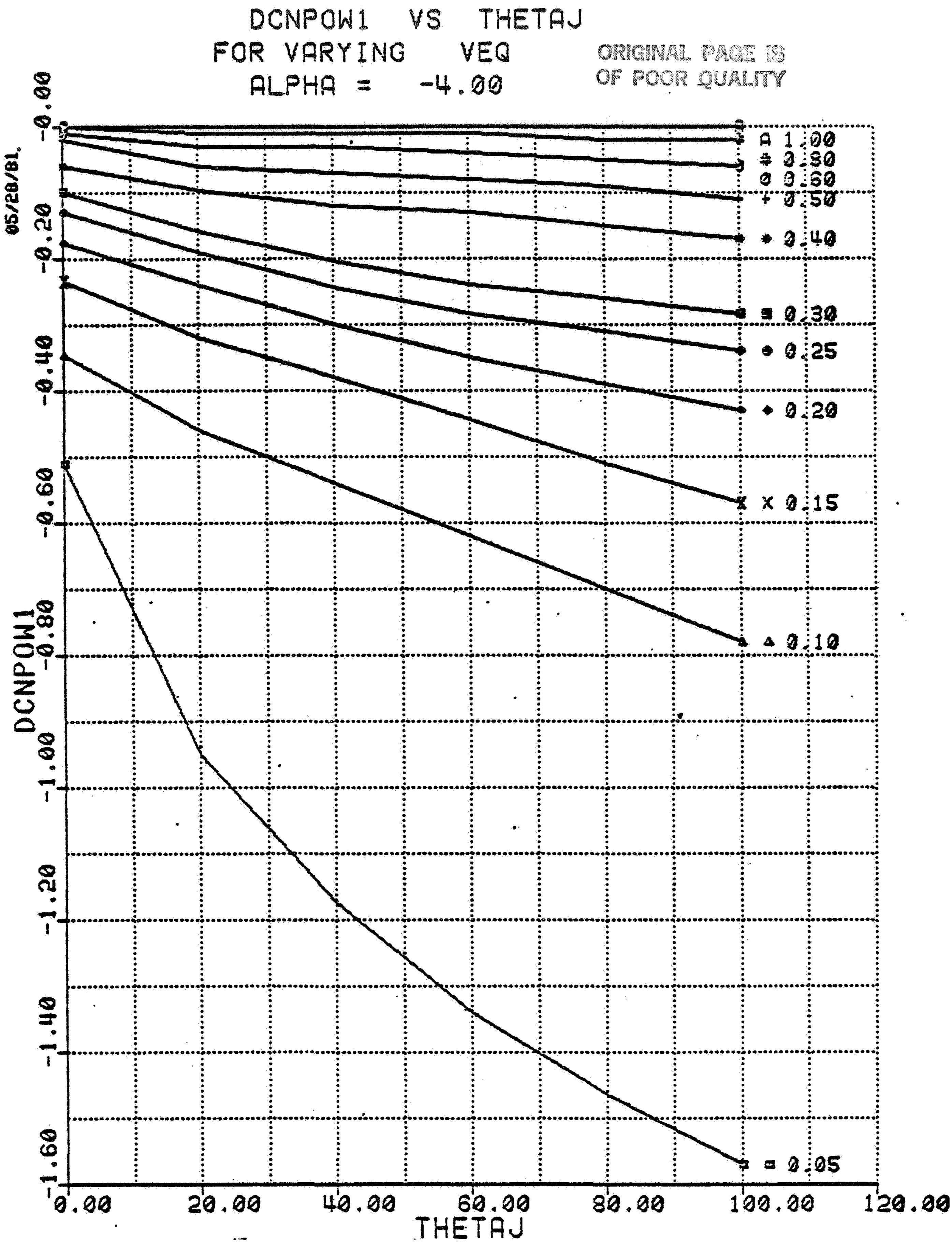

DCMST VS DHTD
FOR VARYING ALP
MACH = 0.90
05/21/81
DCMST
DHTD
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
+ 24.00
* 20.00
⊞ 16.00
◇ 8.00
⊖ 12.00
X 4.00
△ 0.00
⊡ -4.00

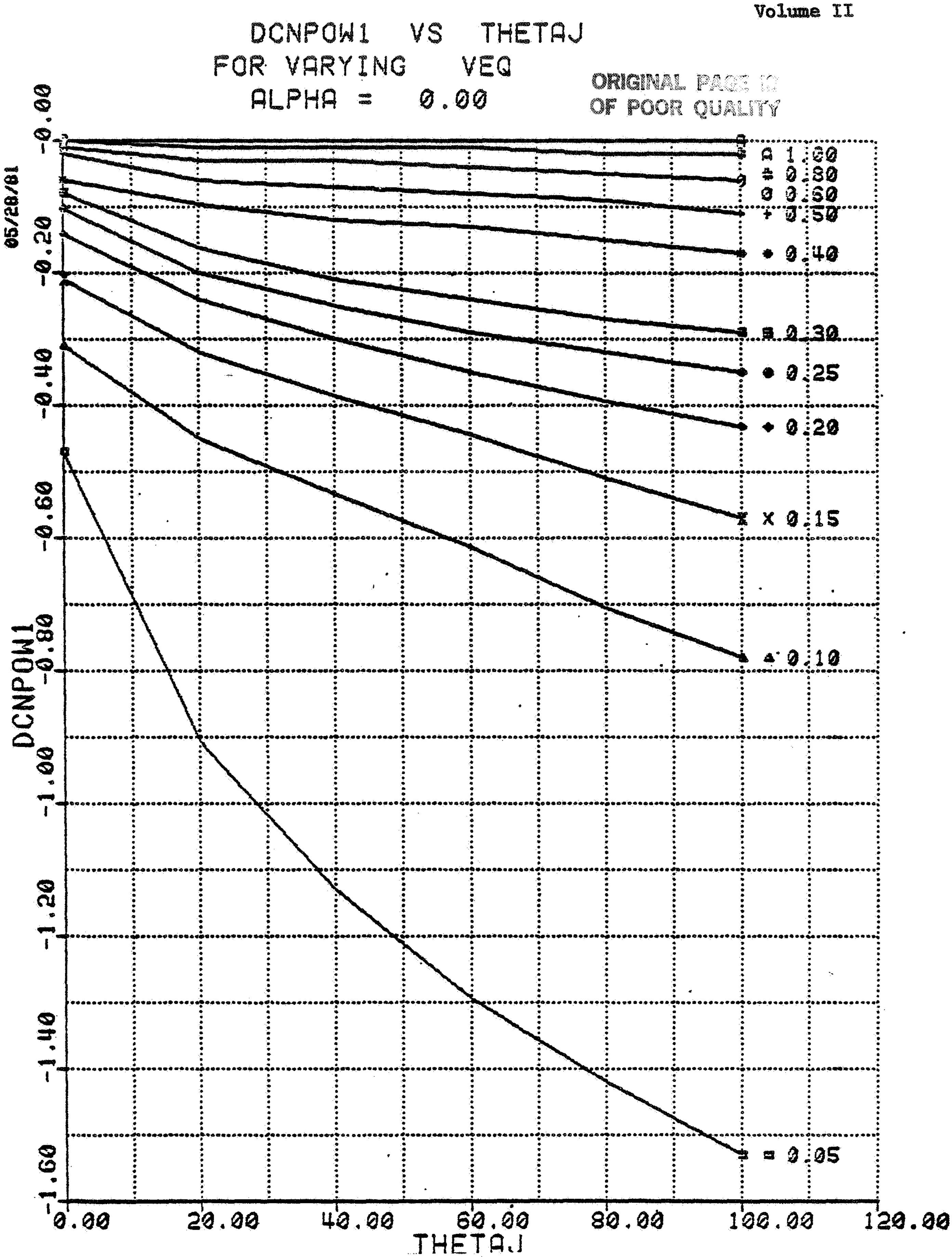

DCMST VS DHTD
FOR VARYING ALP
MACH = 0.95
05/21/81
DCMST
DHTD
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
+ 24.00
* 20.00
⊠ 16.00
⊖ 12.00
◇ 8.00
X 4.00
△ 0.00
□ -4.00

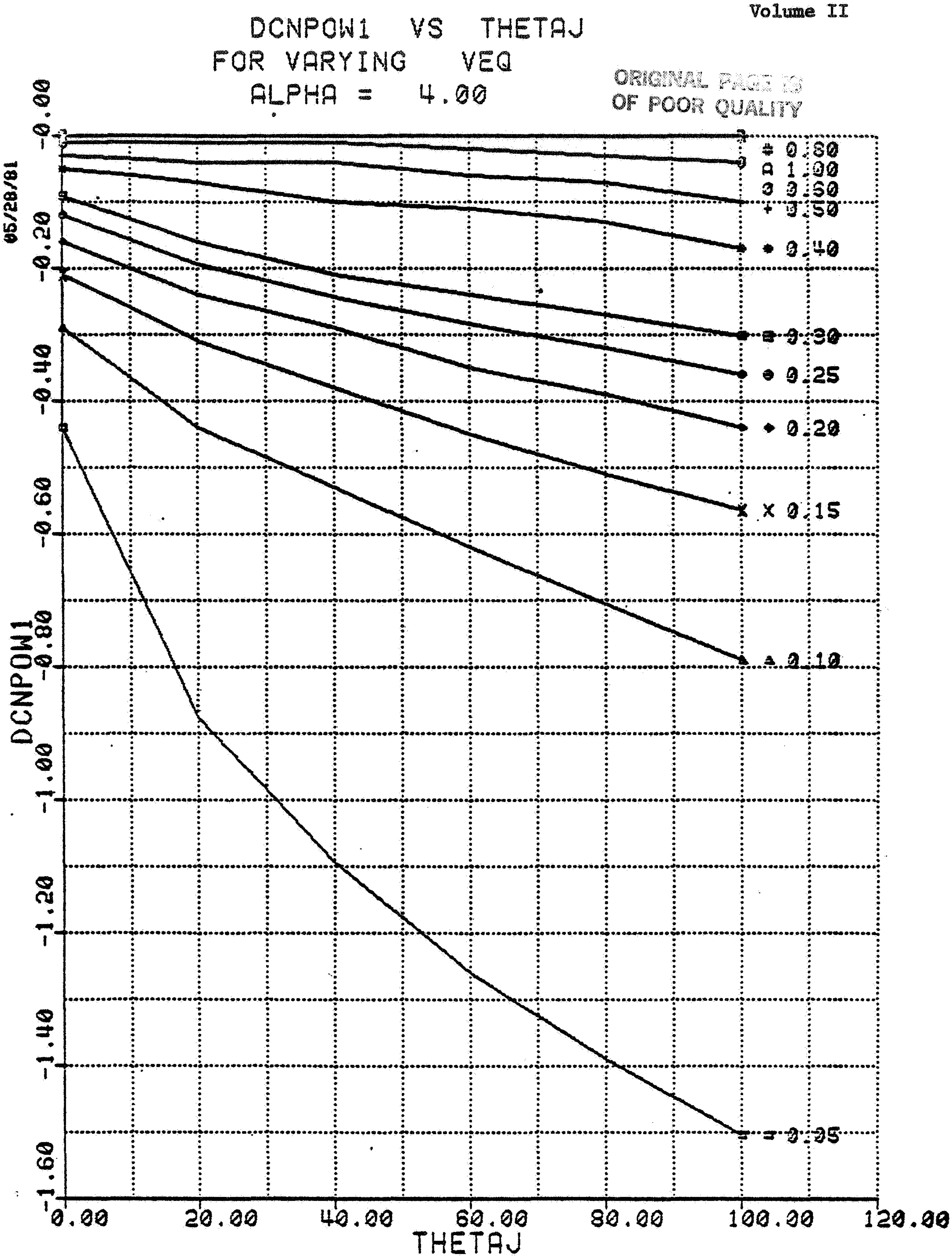
DCMST VS DHTD
FOR VARYING ALP
MACH = 1.05

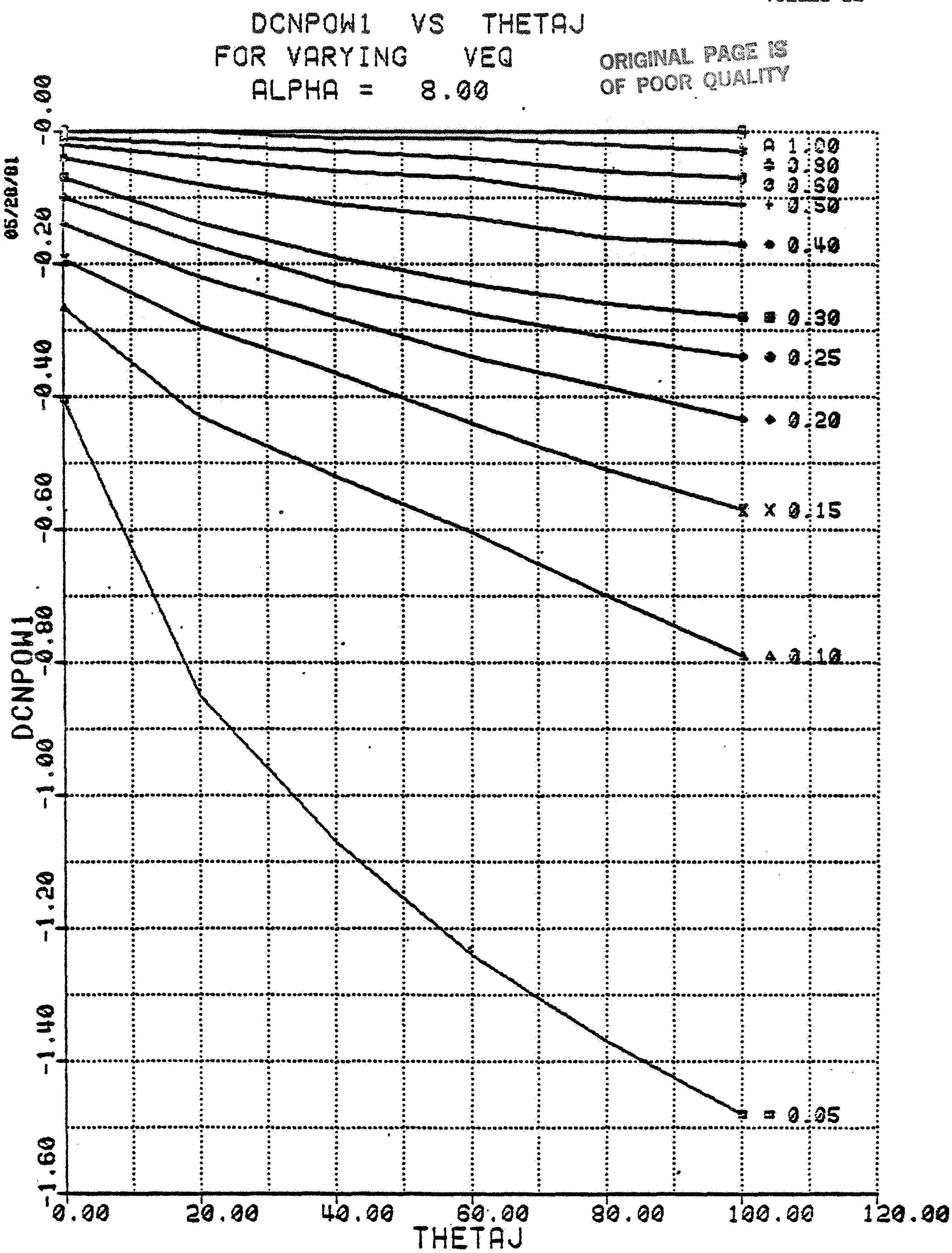


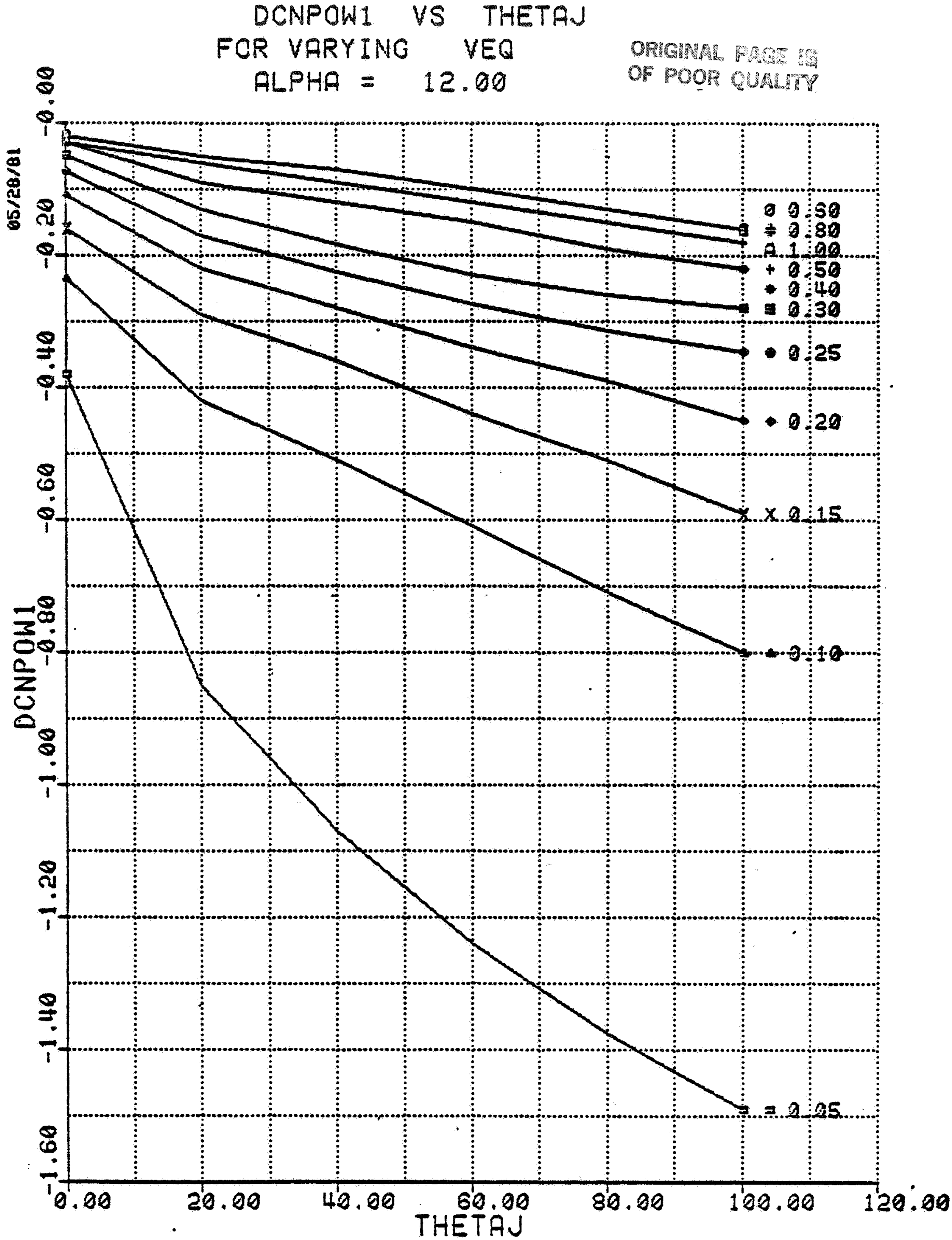

DCMST VS DHTD
FOR VARYING ALP
MACH = 1.20
05/21/81
0.32
0.24
0.16
0.08
0.00
-0.08
-0.16
-0.24
-0.32
DCMST
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
DHTD
+ 24.00
* 20.00
⊠ 16.00
⊖ 12.00
◇ 8.00
X 4.00
△ 0.00
⊡ -4.00

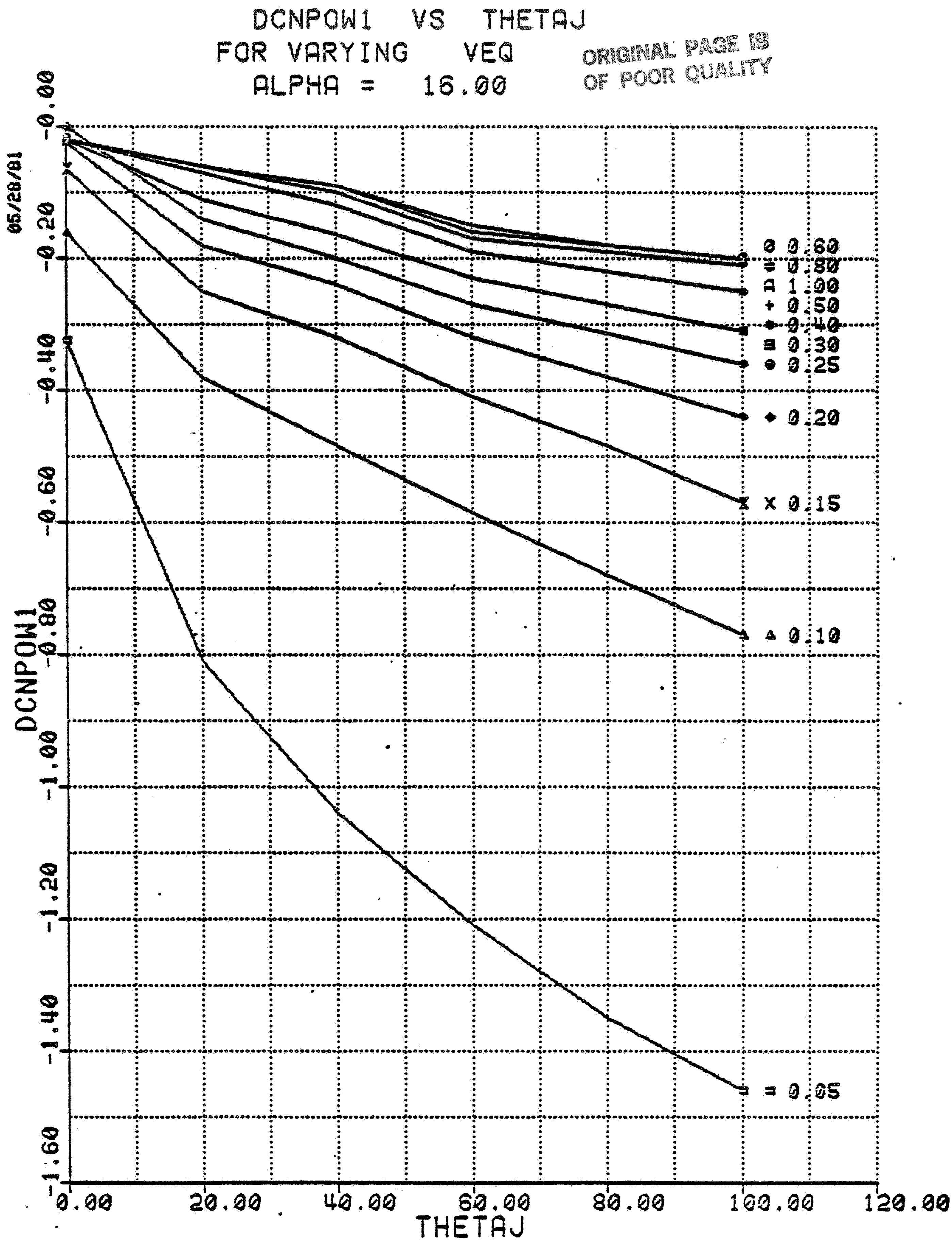

DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = -4.00
05/28/81.
DCNPOW1
THETAJ
A 1.00
0.80
@ 0.60
+ 0.50
* 0.40
■ 0.30
● 0.25
◆ 0.20
x 0.15
▲ 0.10
□ 0.05
0.00
20.00
40.00
60.00
80.00
100.00
120.00
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60

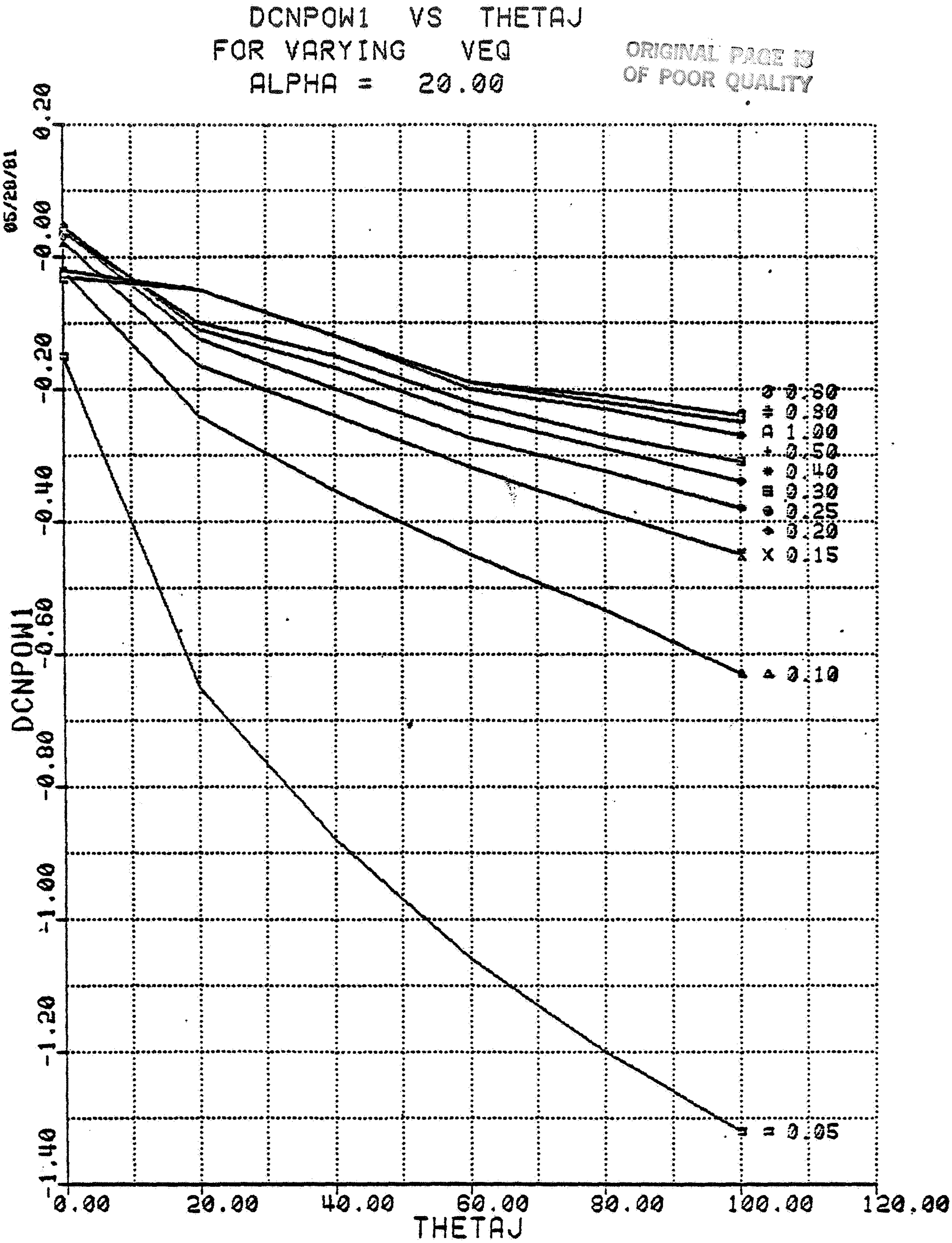

DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = 0.00
05/28/81
DCNPOW1
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
1.00
0.80
0.60
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

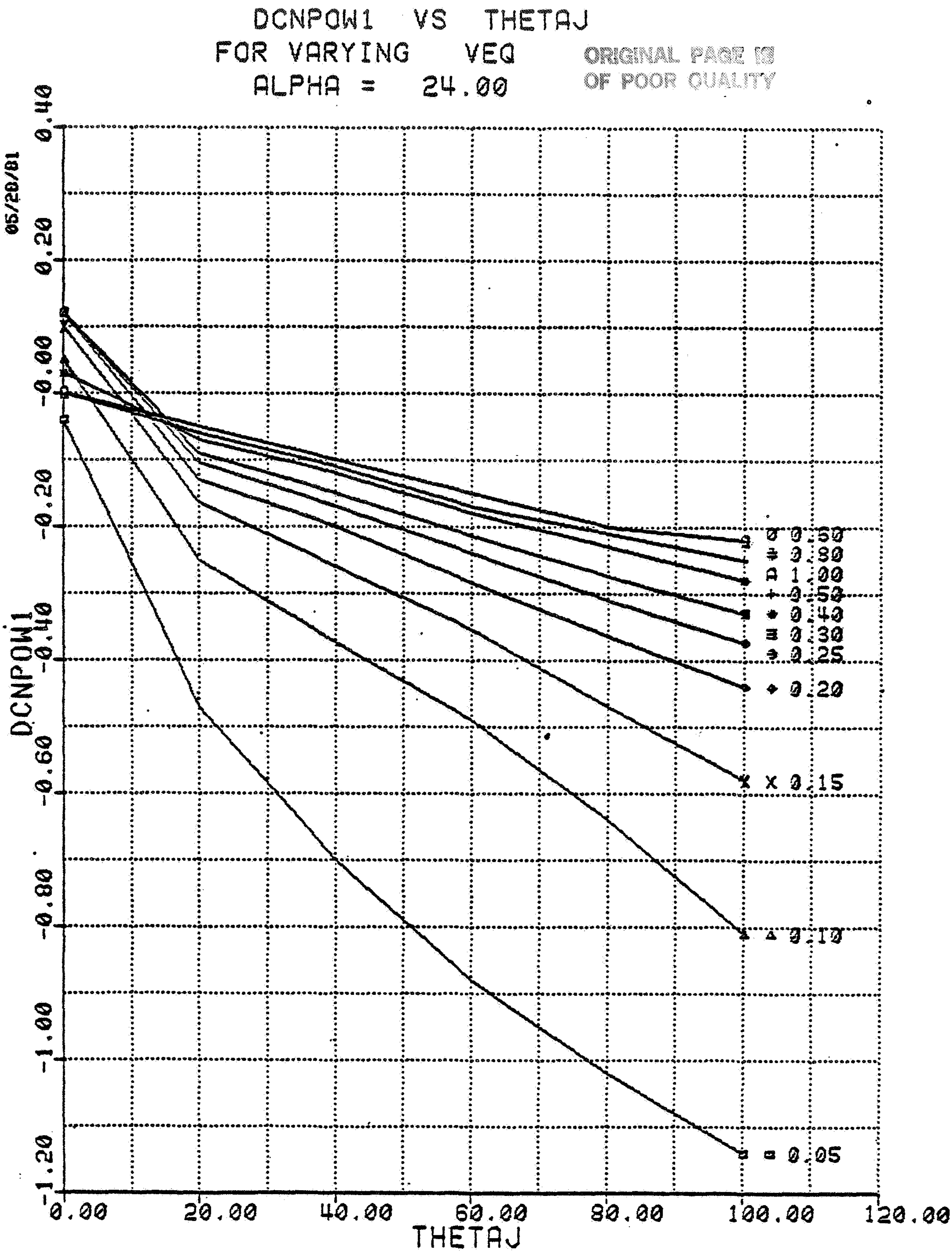

DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = 4.00
05/28/81
DCNPOW1
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
0.80
1.00
0.60
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

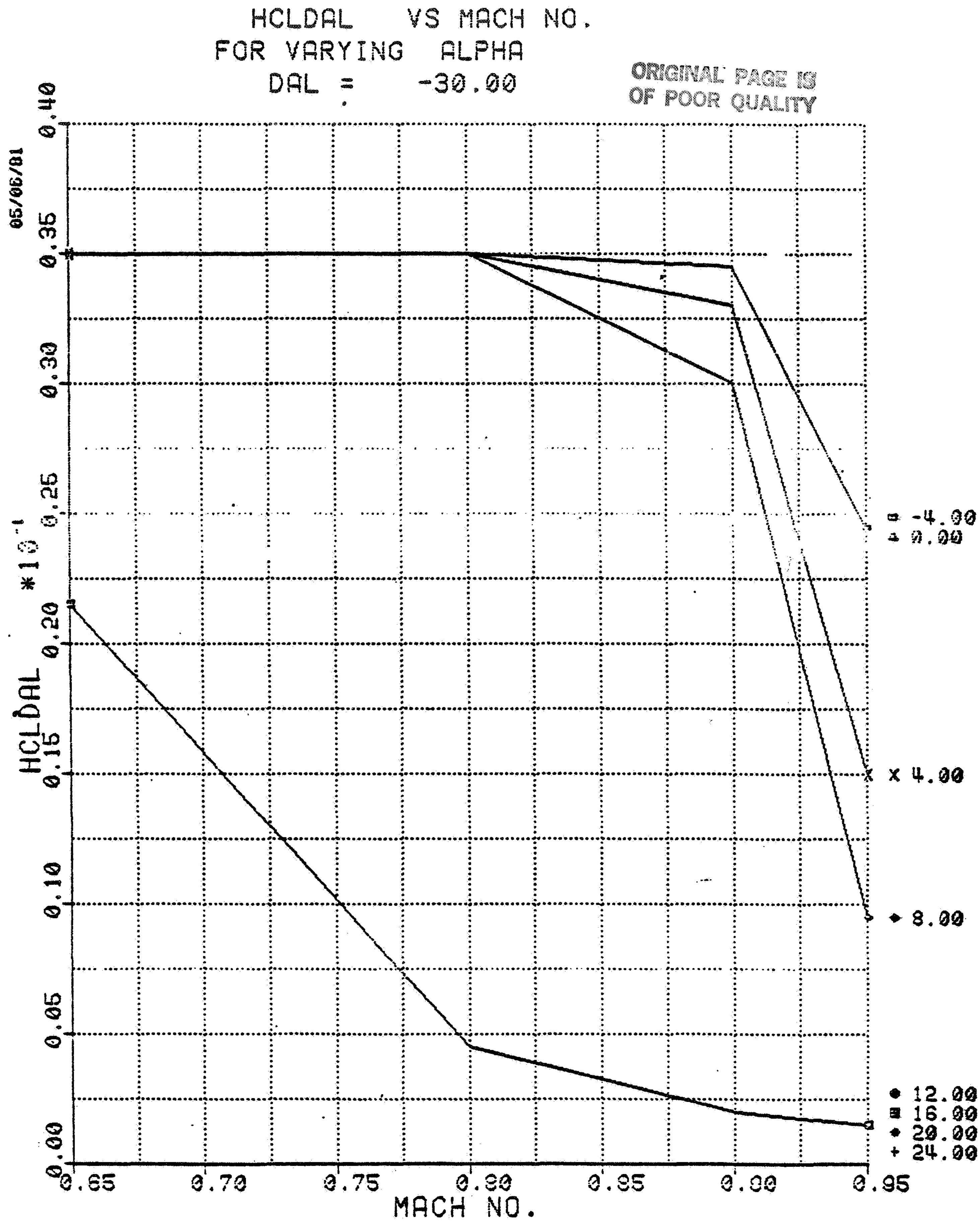

DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = 8.00
05/28/81
DCNPOW1
THETAJ
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
1.00
0.80
0.60
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05


DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = 12.00
05/28/81
ORIGINAL PAGE IS
OF POOR QUALITY
DCNPOW1
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
0.00
20.00
40.00
60.00
80.00
100.00
120.00
THETAJ
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05


DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = 16.00
ORIGINAL PAGE IS
OF POOR QUALITY
05/28/81
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
-1.60
DCNPOW1
0.00
20.00
40.00
60.00
80.00
100.00
120.00
THETAJ
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

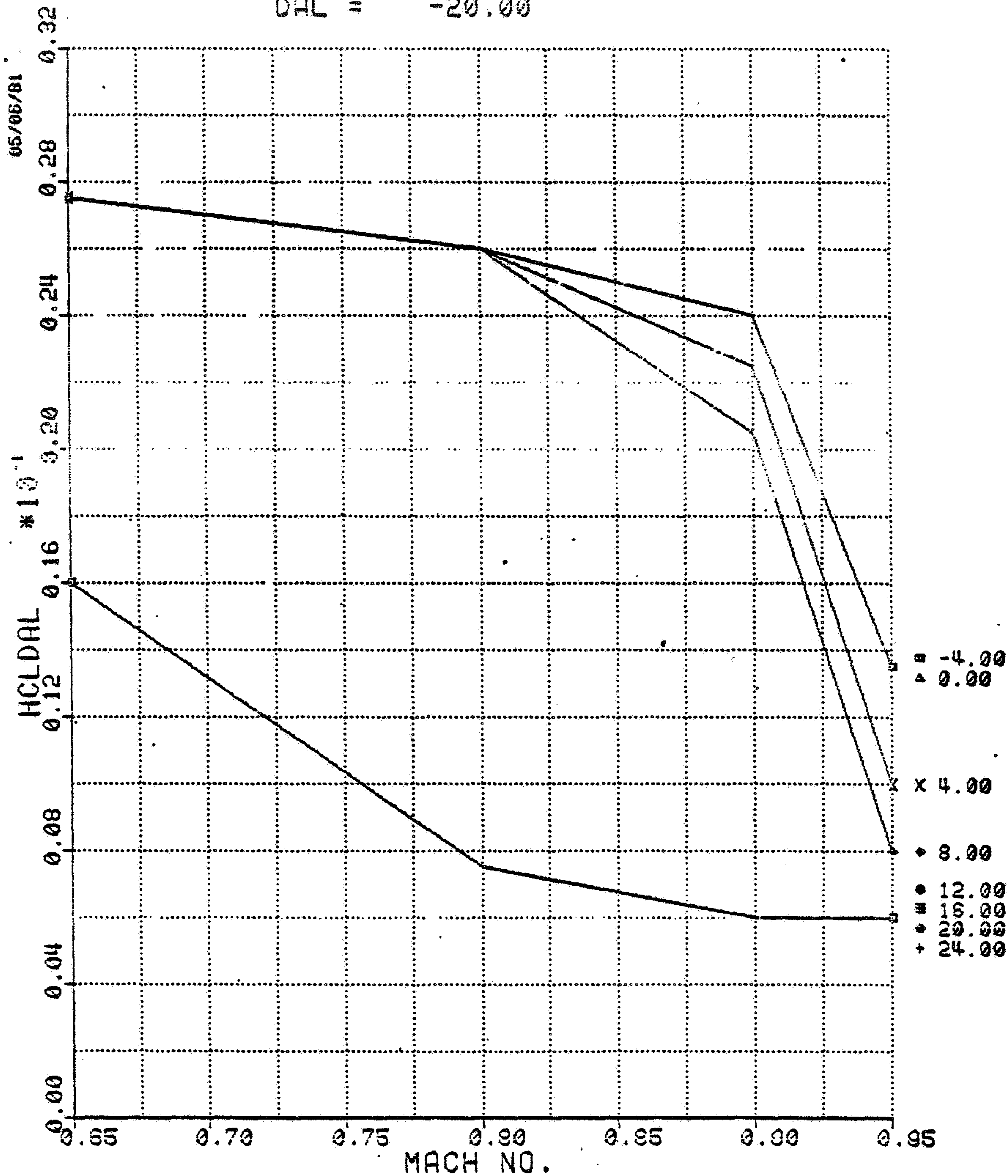

DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = 20.00
ORIGINAL PAGE IS
OF POOR QUALITY
05/20/81
DCNPOW1
THETAJ
0.20
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
-1.40
0.00
20.00
40.00
60.00
80.00
100.00
120.00
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
X 0.15
0.10
0.05

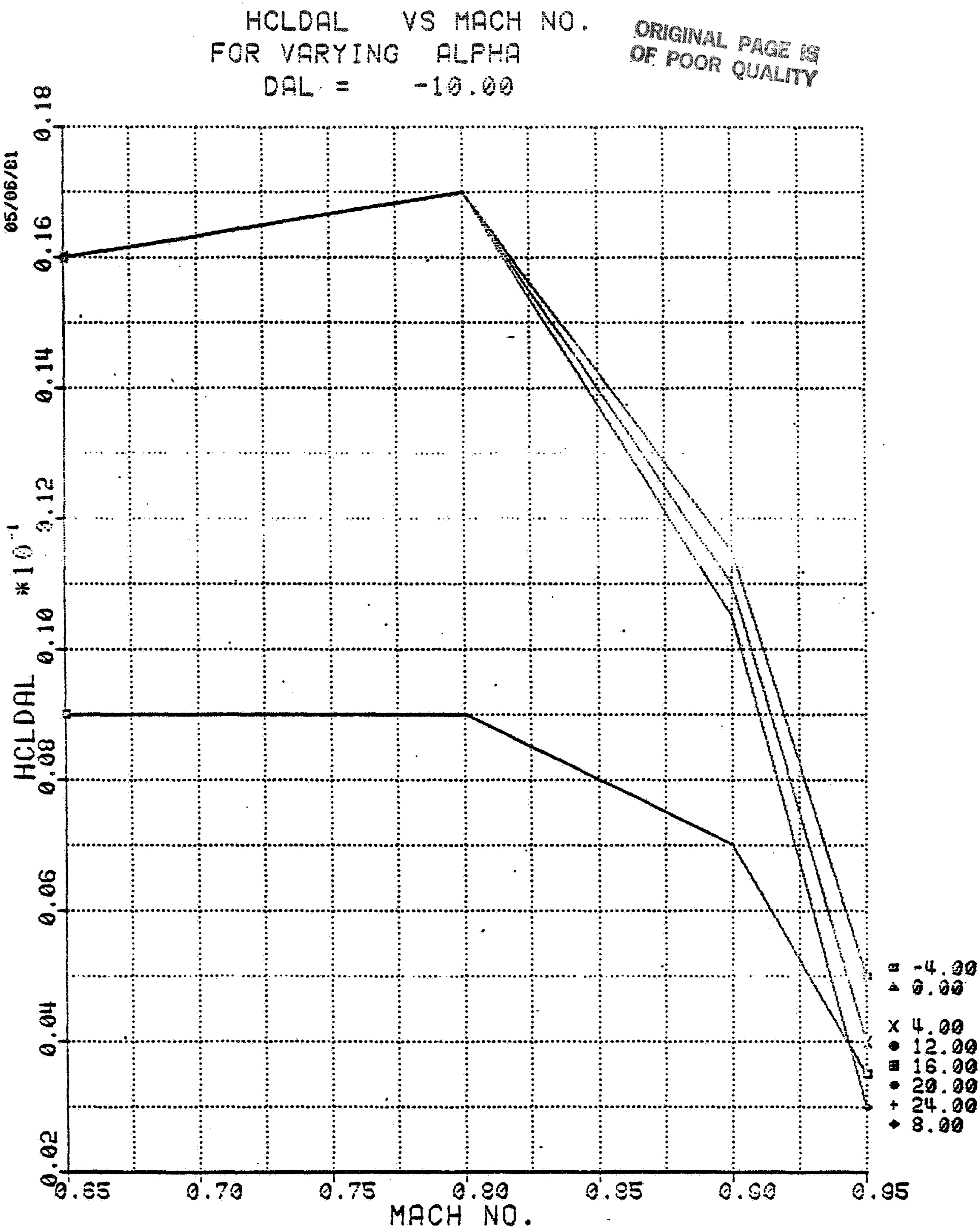

DCNPOW1 VS THETAJ
FOR VARYING VEQ
ALPHA = 24.00
05/20/81
DCNPOW1
THETAJ
0.40
0.20
-0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
0.00
20.00
40.00
60.00
80.00
100.00
120.00
0.60
0.80
1.00
0.50
0.40
0.30
0.25
0.20
0.15
0.10
0.05

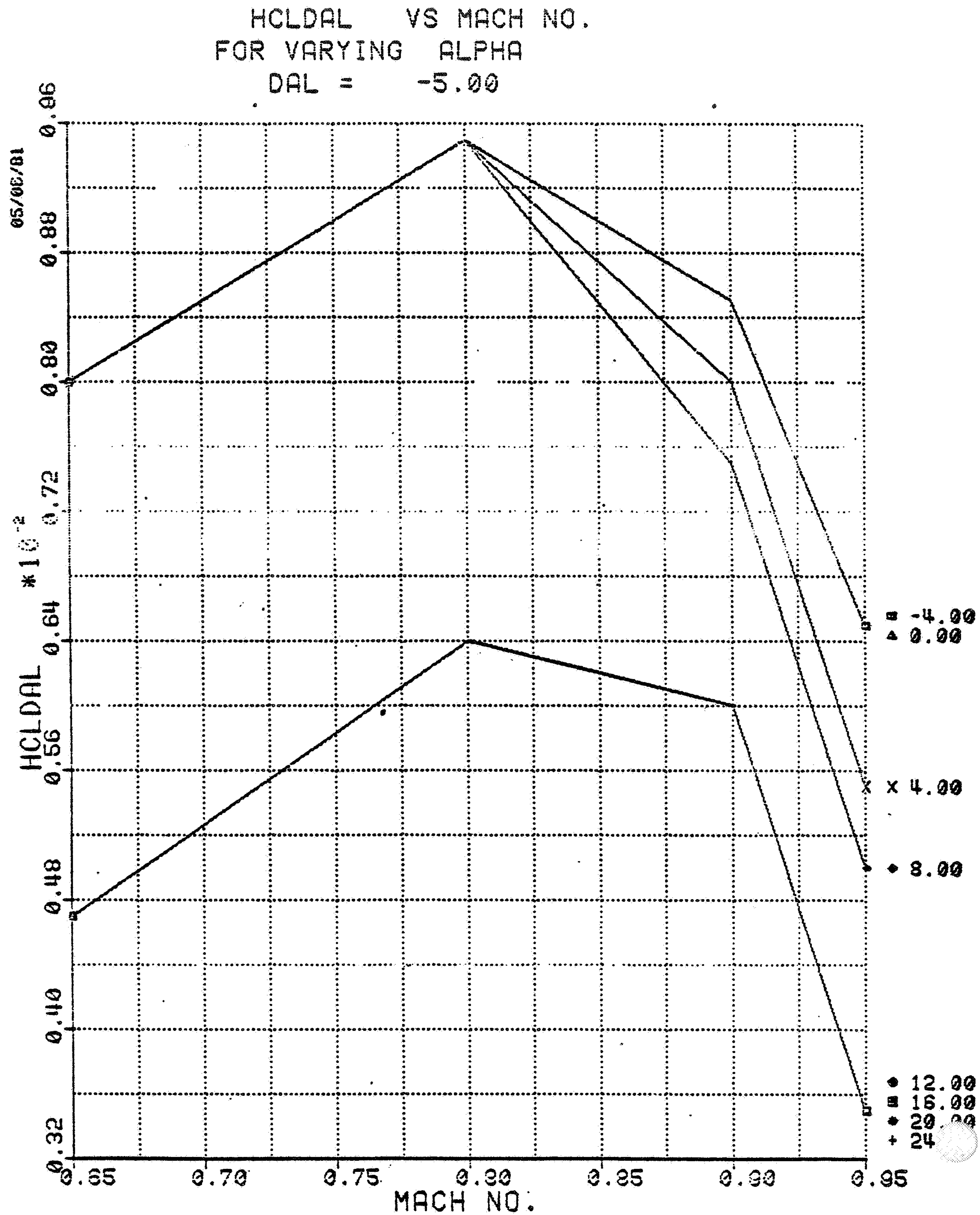

HCLDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -30.00
ORIGINAL PAGE IS
OF POOR QUALITY
05/06/81
HCLDAL *10⁻¹
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00

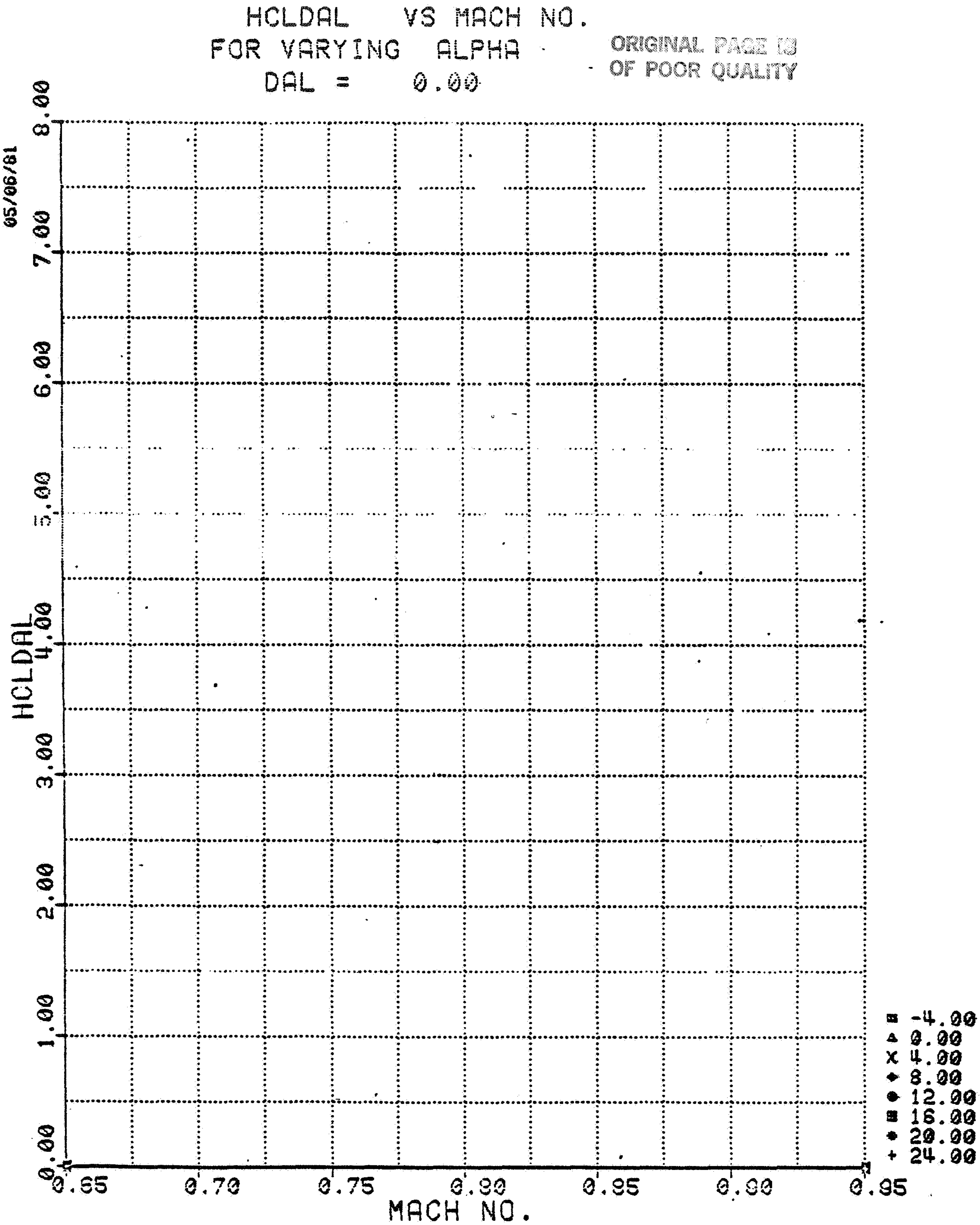
ORIGINAL PAGE IS
OF POOR QUALITY

HCLDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -20.00

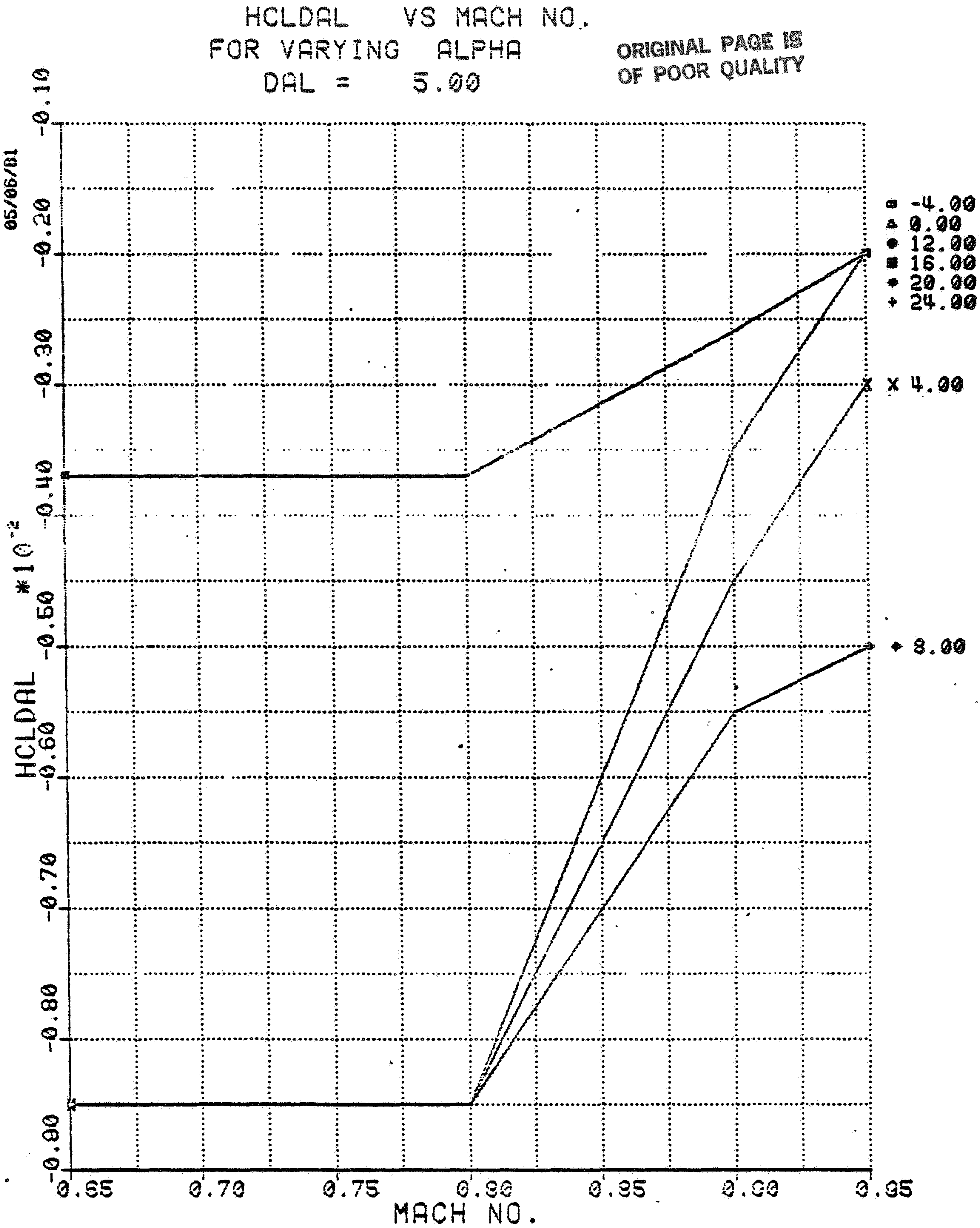


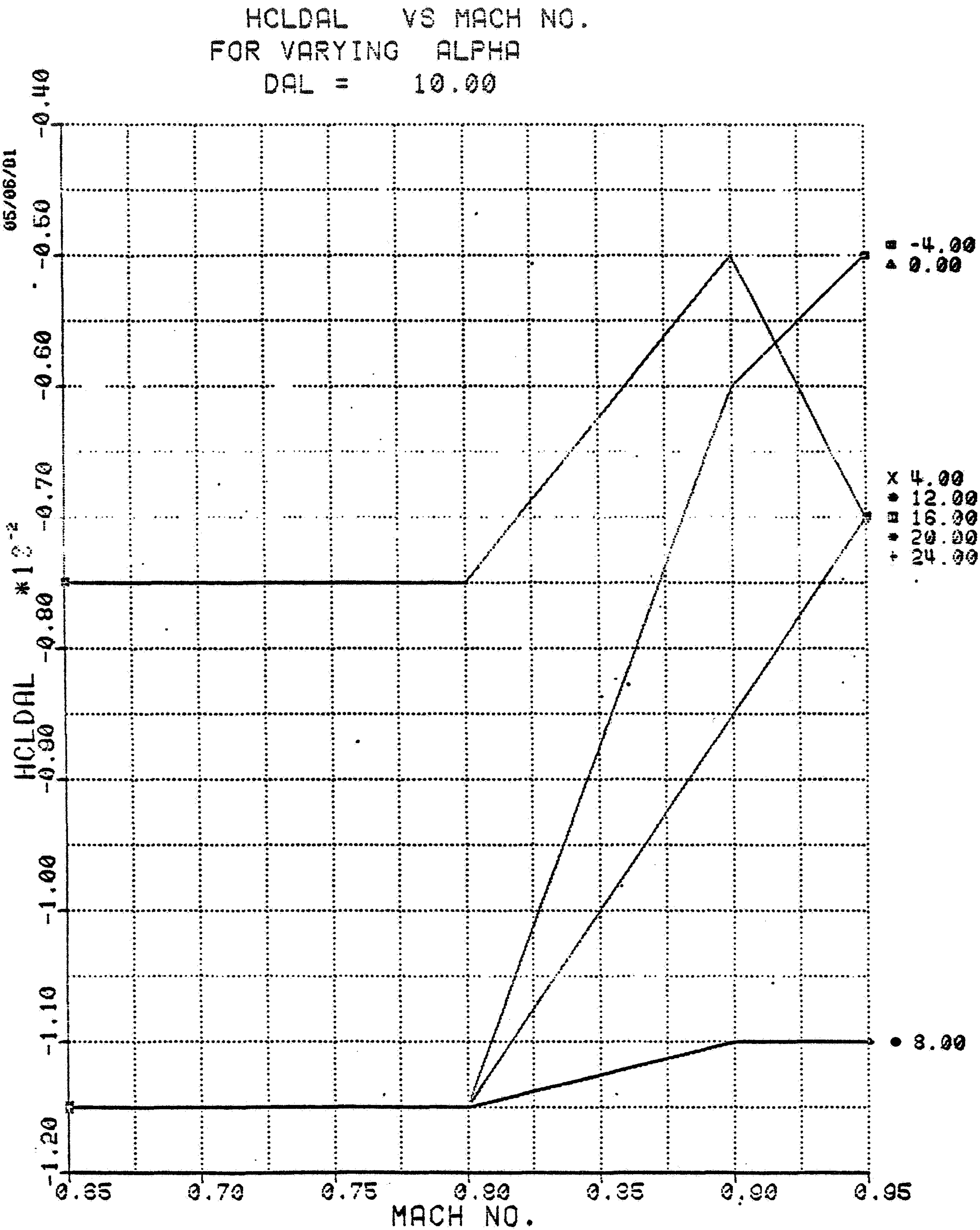

HCLDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -10.00
05/06/81
HCLDAL *10⁻¹
MACH NO.
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.65
0.70
0.75
0.80
0.85
0.90
0.95
-4.00
0.00
4.00
12.00
16.00
20.00
24.00
8.00

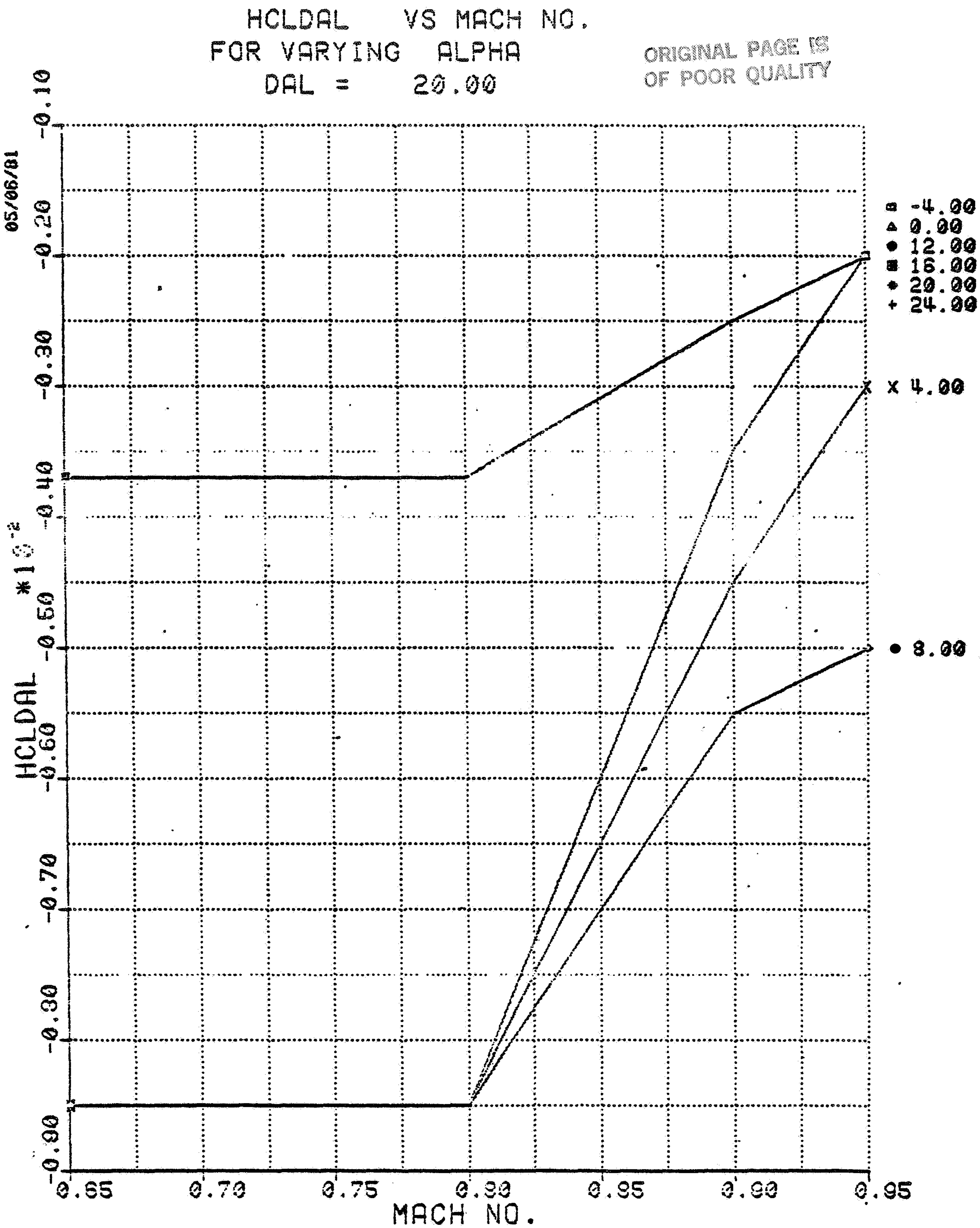

HCLDAL VS MACH NO.
FOR VARYING ALPHA
DAL = -5.00
05/06/81
HCLDAL *10⁻²
0.96
0.88
0.80
0.72
0.64
0.56
0.48
0.40
0.32
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24


HCLDAL VS MACH NO.
FOR VARYING ALPHA
DAL = 0.00
05/06/81
HCLDAL
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00

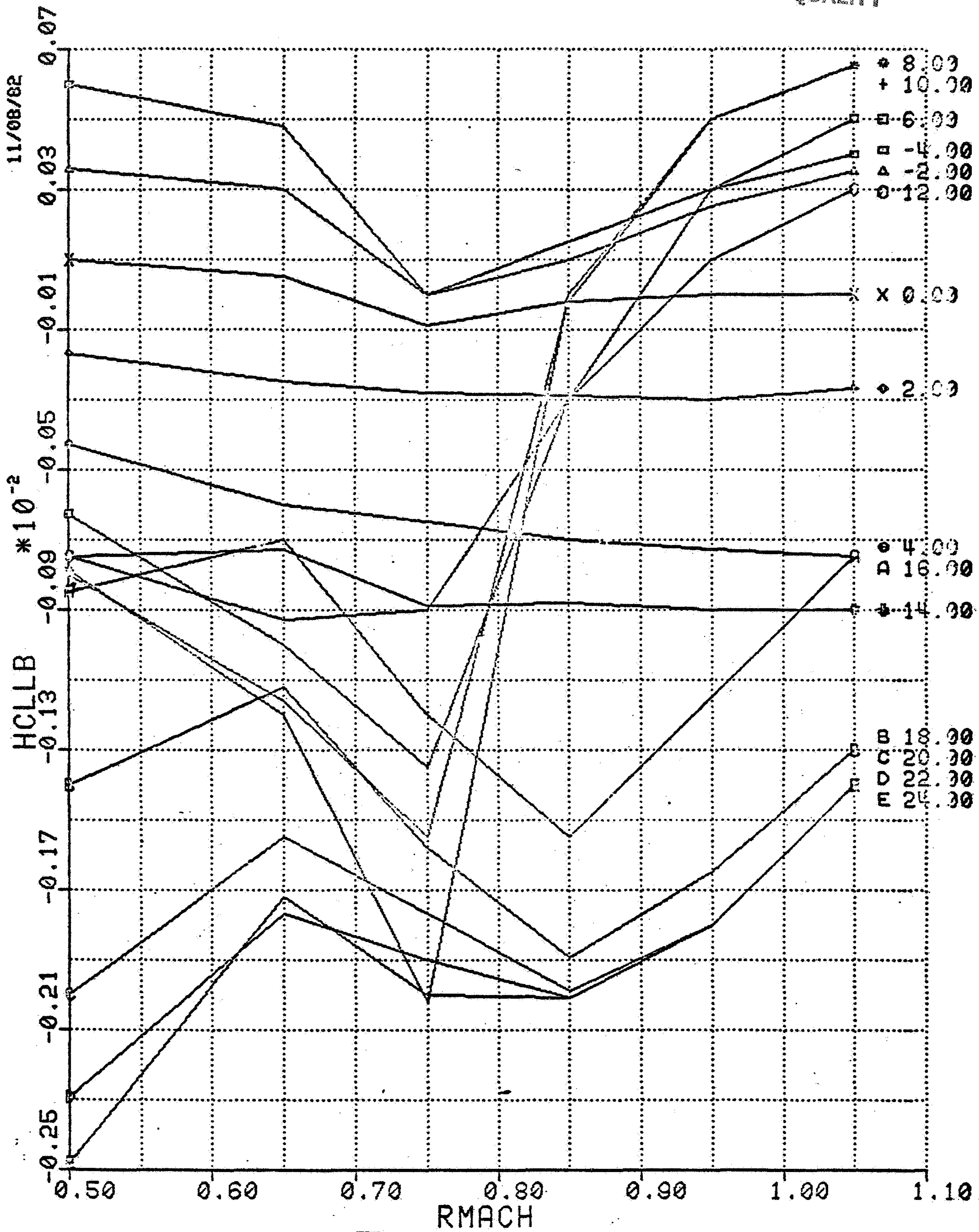
ORIGINAL PAGE IS
OF POOR QUALITY

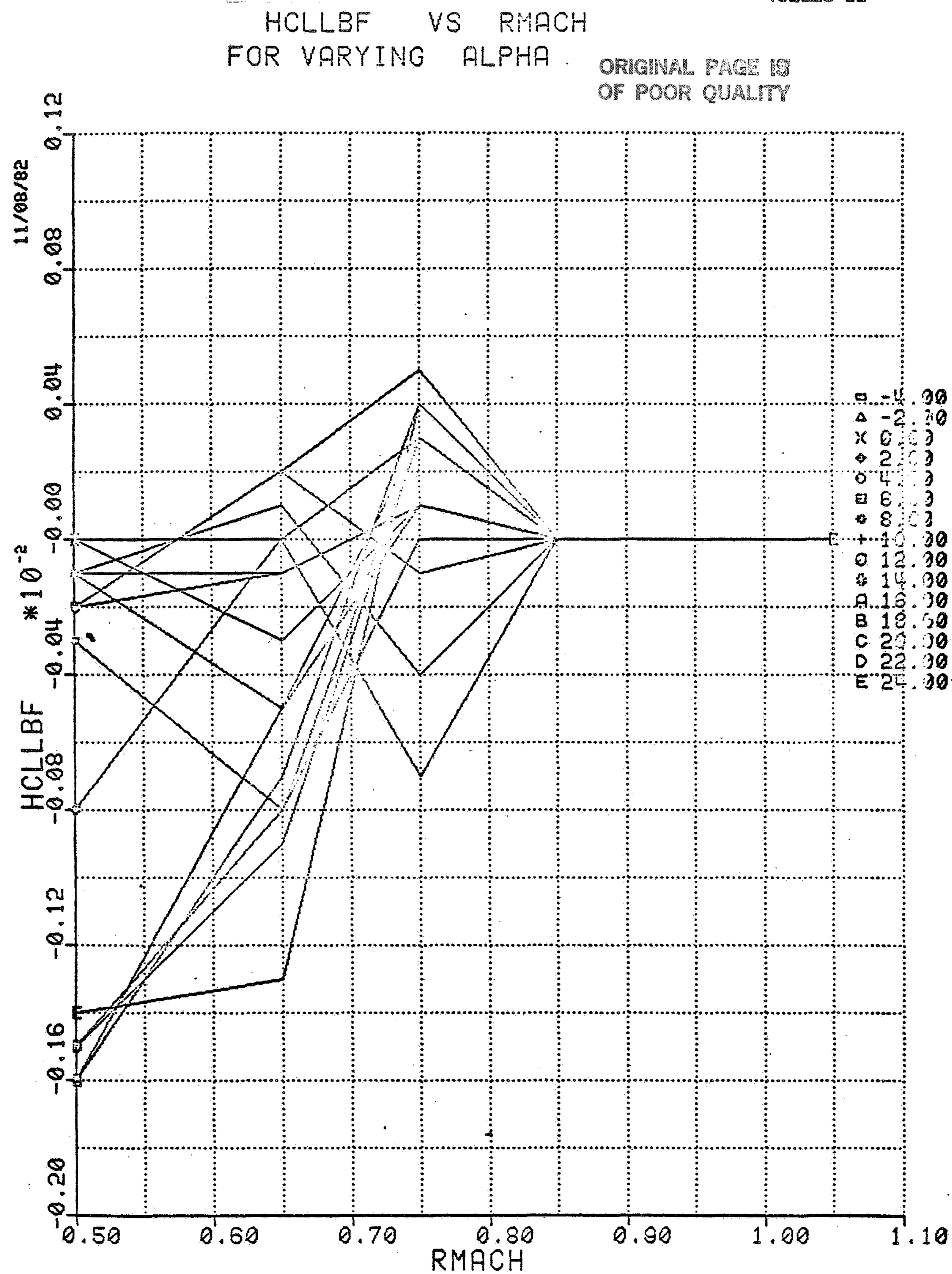



HCLDAL VS MACH NO.
FOR VARYING ALPHA
DAL = 10.00
05/06/81
HCLDAL *10^-2
-0.40
-0.50
-0.60
-0.70
-0.80
-0.90
-1.00
-1.10
-1.20
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
x 4.00
12.00
16.00
20.00
+ 24.00
8.00

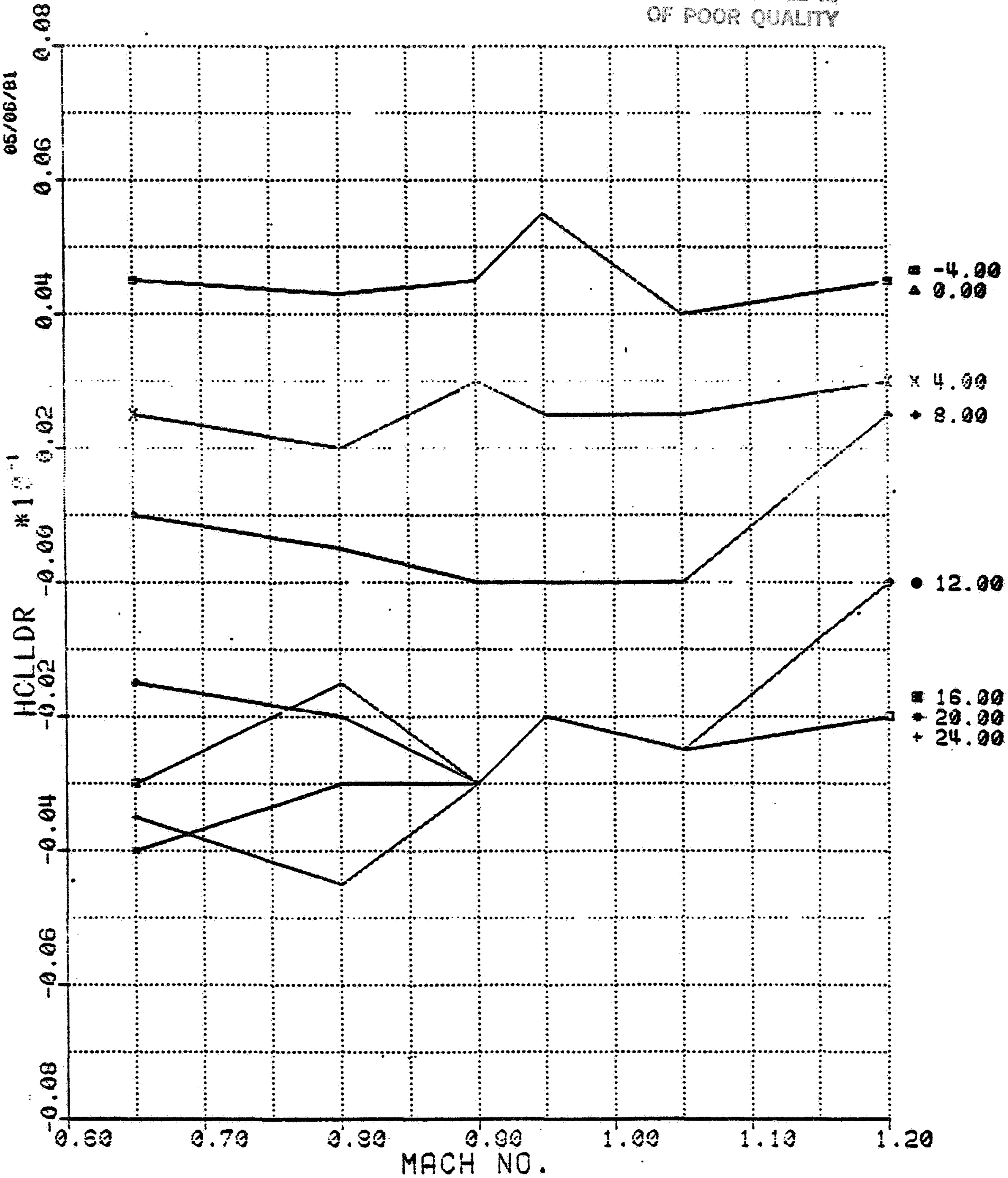

HCLDAL VS MACH NO.
FOR VARYING ALPHA
DAL = 20.00
05/06/81
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-0.70
-0.80
-0.90
HCLDAL *10⁻²
0.65
0.70
0.75
0.80
0.85
0.90
0.95
MACH NO.
-4.00
0.00
12.00
16.00
20.00
24.00
X 4.00
8.00

HCLLB VS RMACH FOR VARYING ALPHA




HCLLBF VS RMACH
FOR VARYING ALPHA
11/08/82
HCLLBF *10^-2
RMACH
0.12
0.08
0.04
-0.00
-0.04
-0.08
-0.12
-0.16
-0.20
0.50
0.60
0.70
0.80
0.90
1.00
1.10
-4.00
-2.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00

HCLLDR VS MACH NO.
FOR VARYING ALPHA



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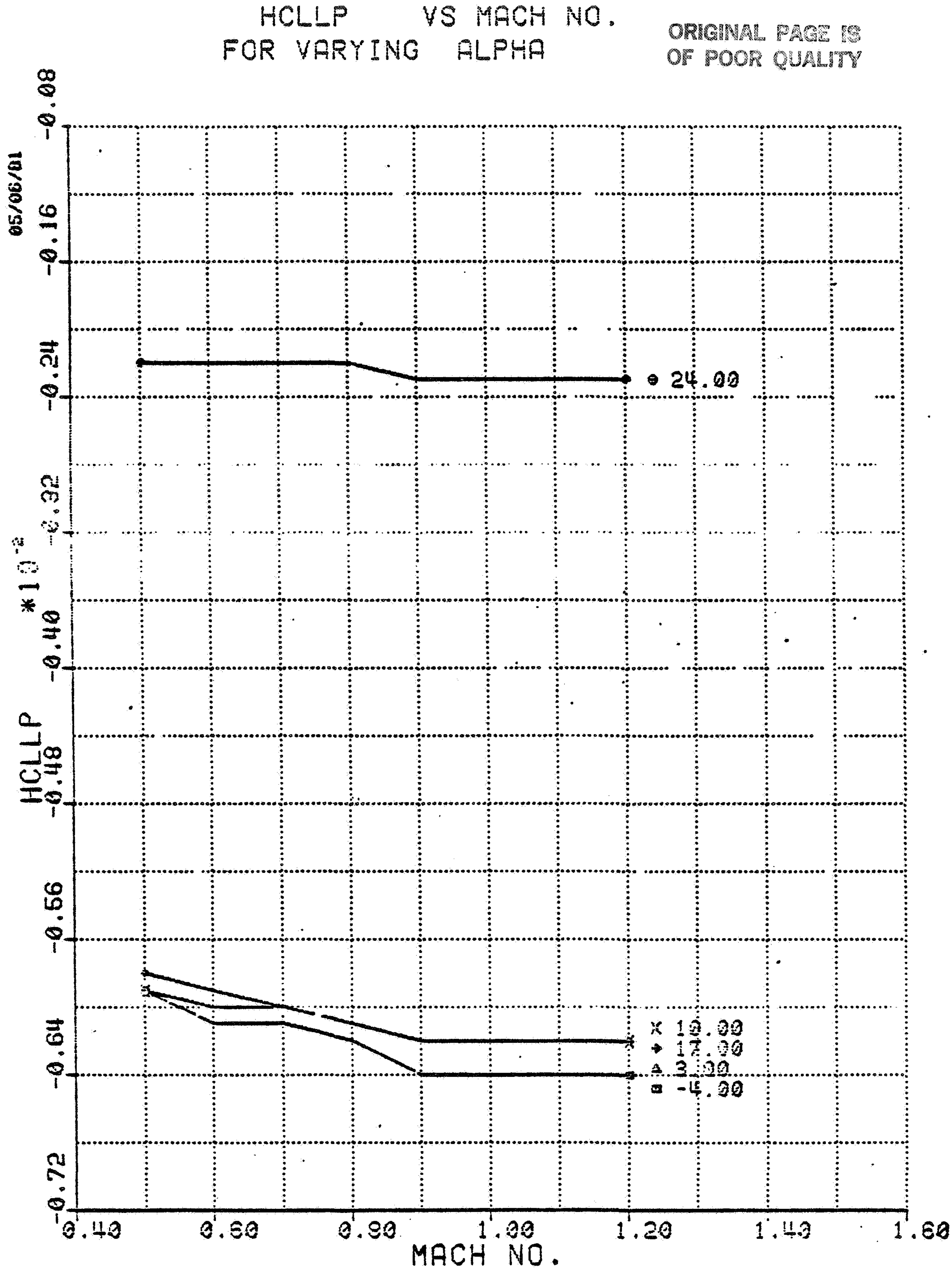
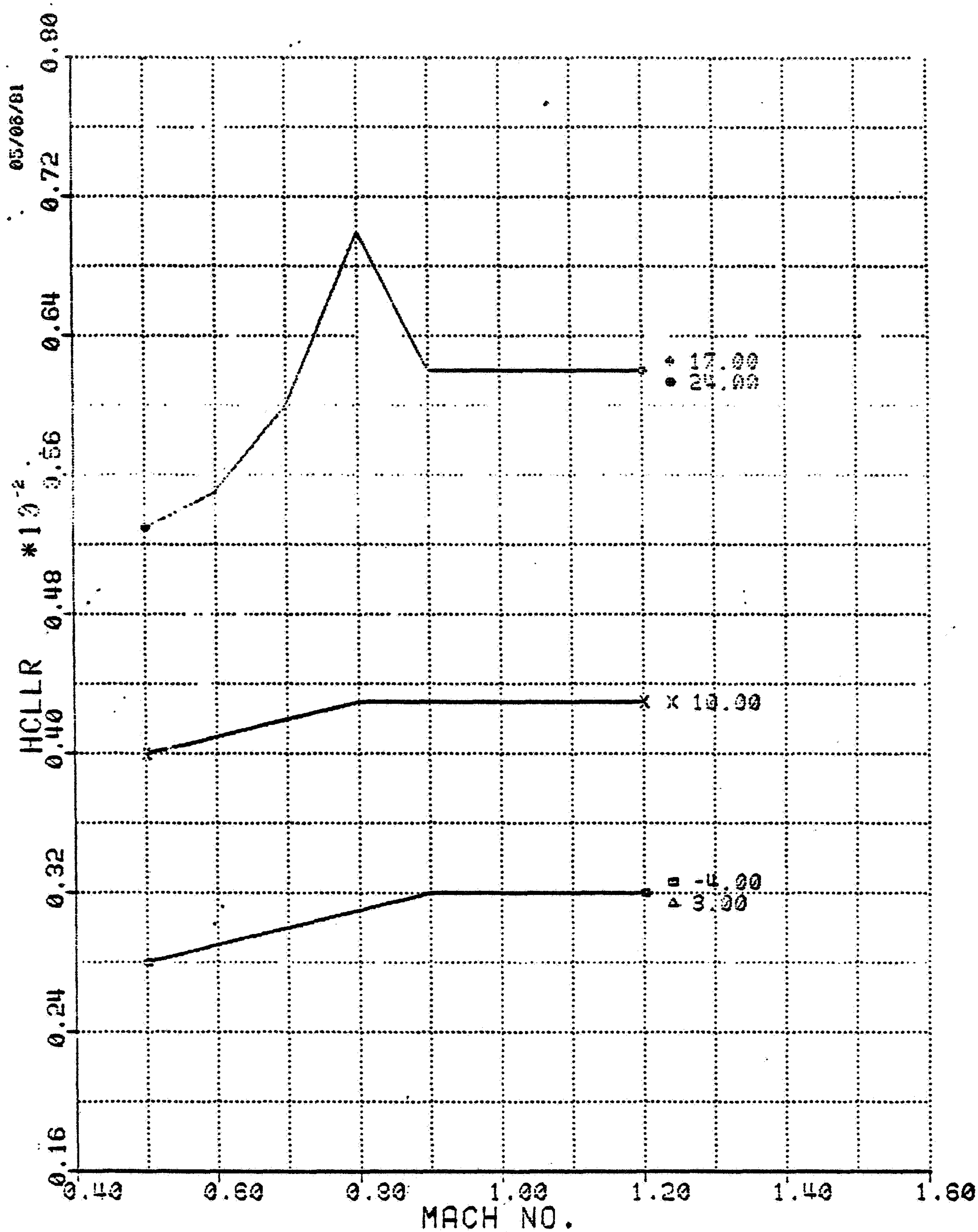
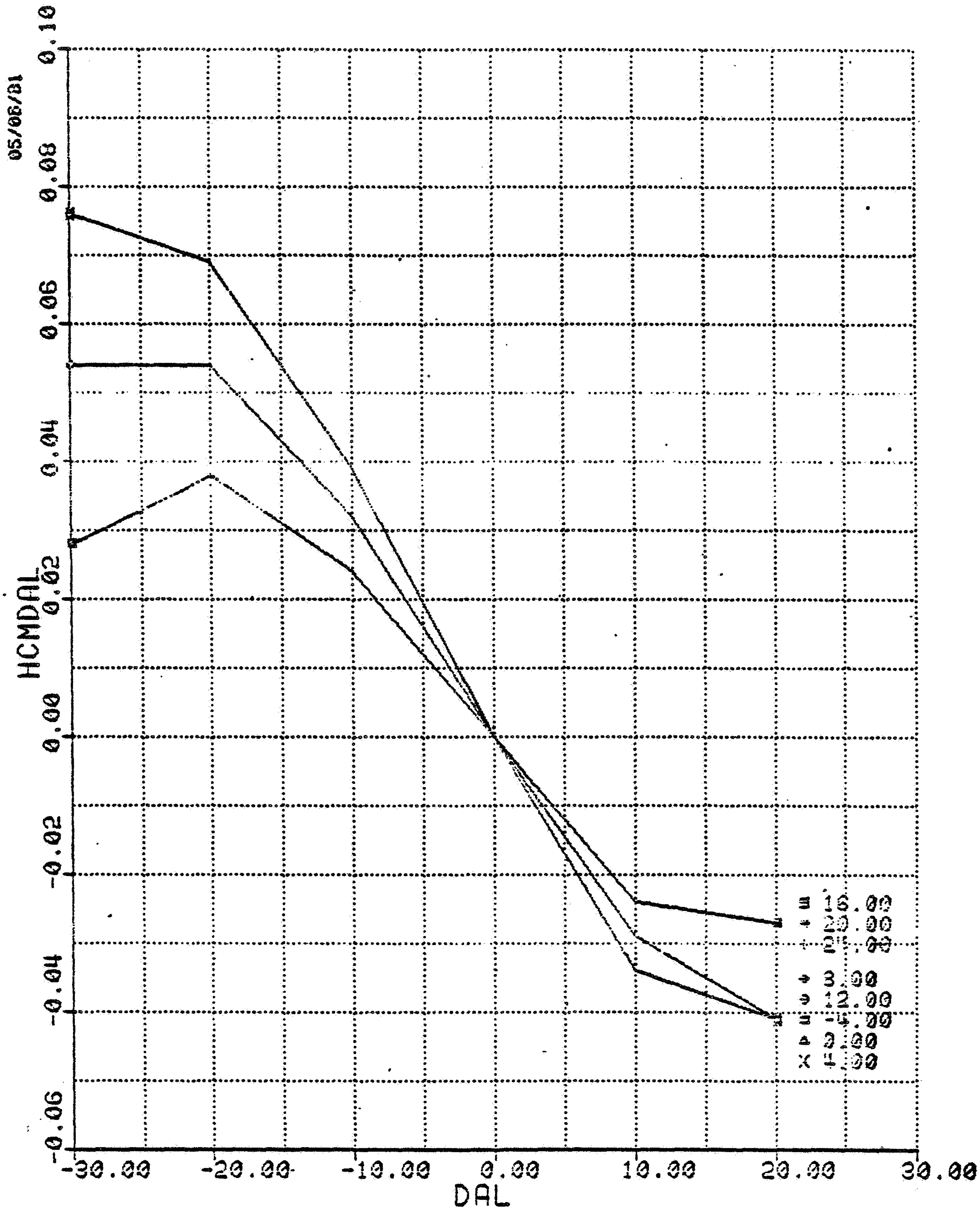
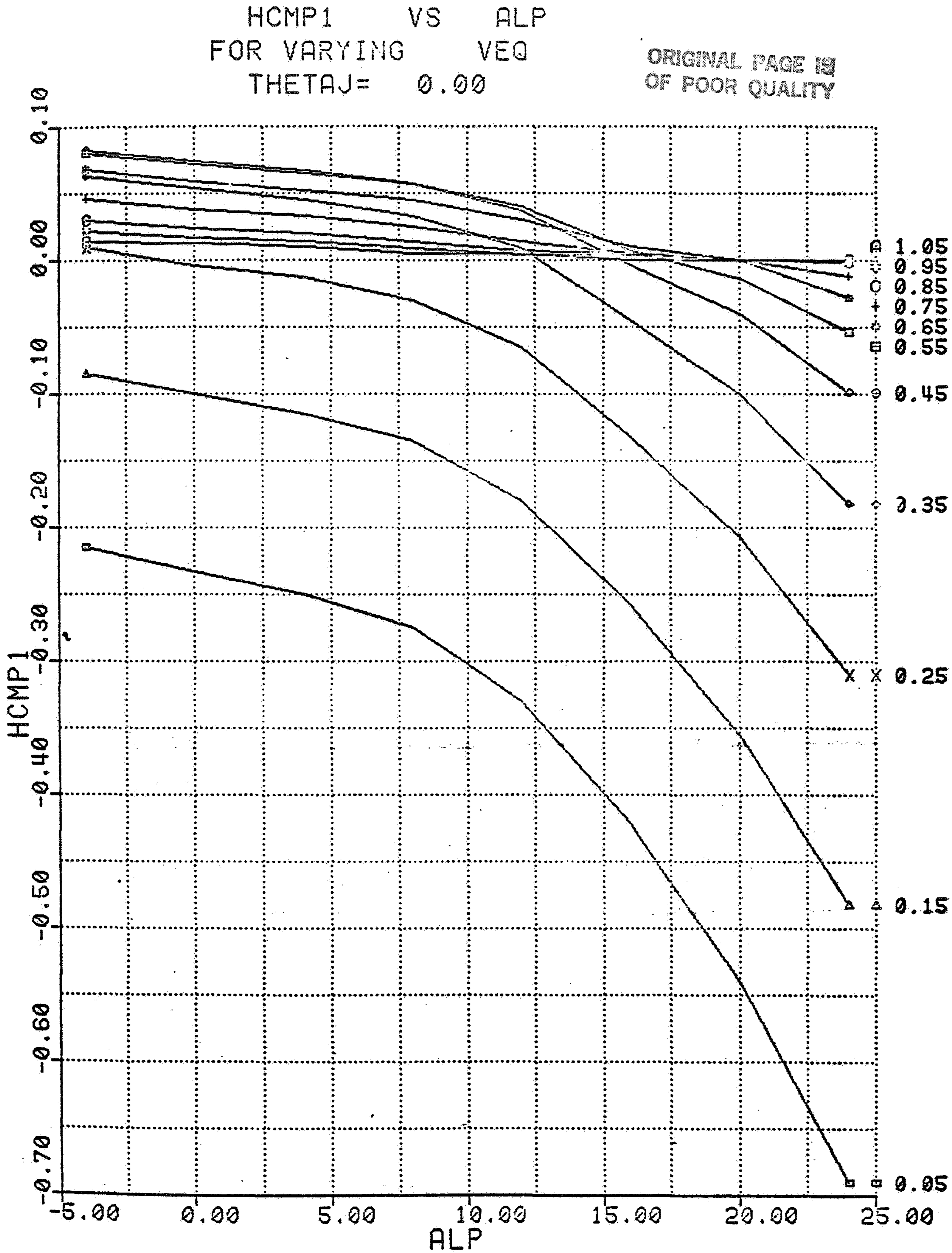


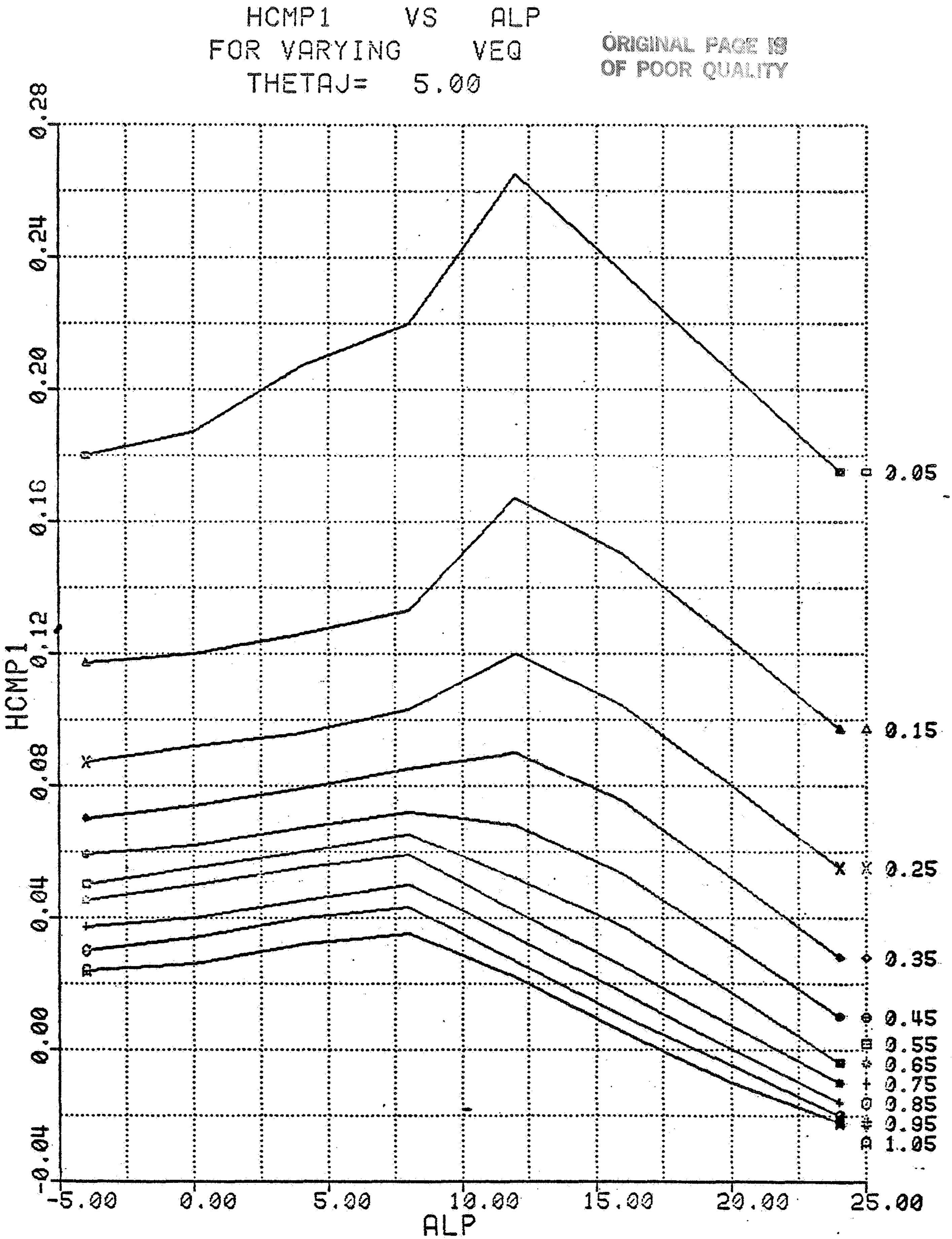
HCLLR VS MACH NO.
FOR VARYING ALPHA



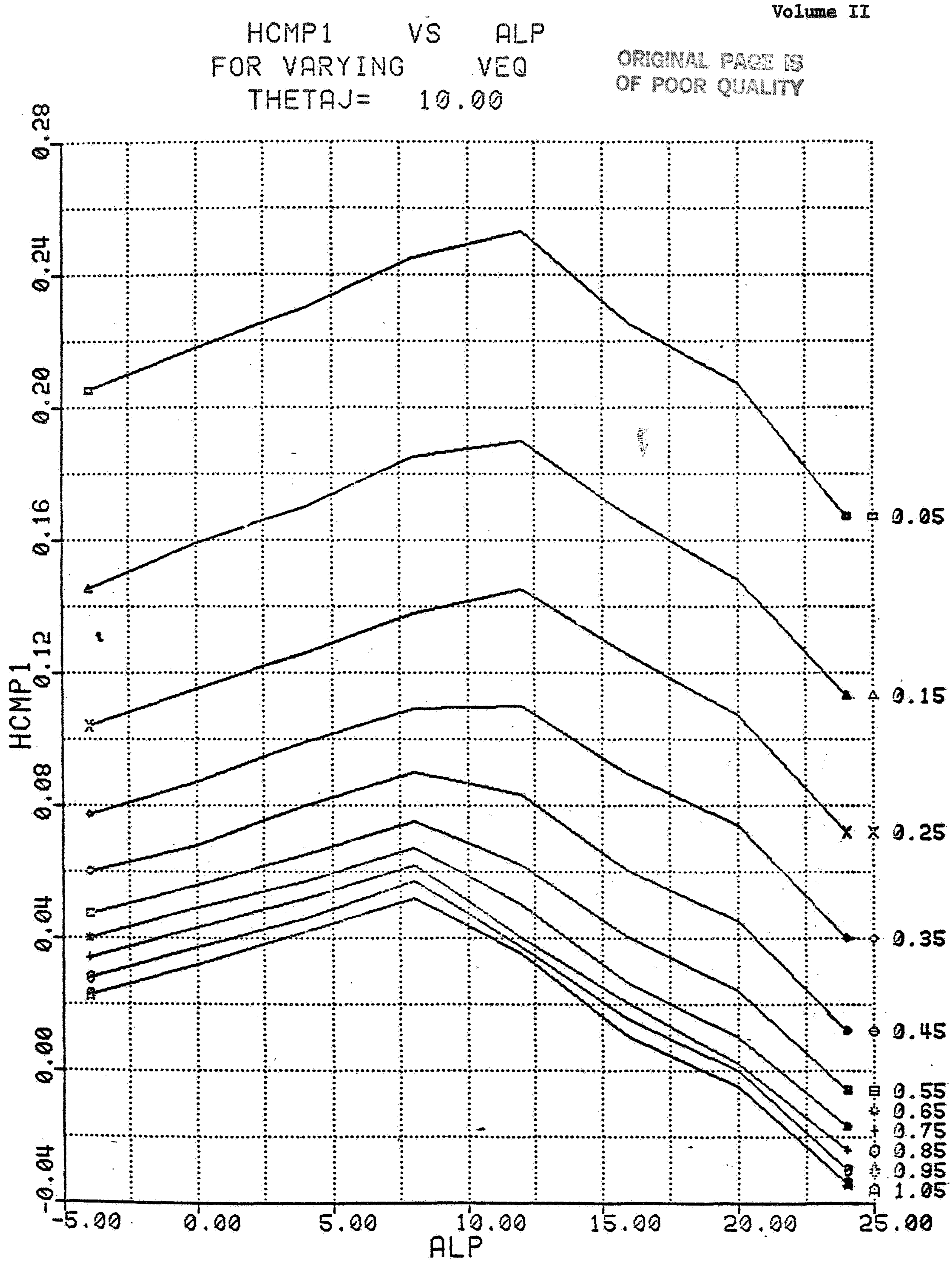
HCMDAL VS DAL
FOR VARYING ALPHA

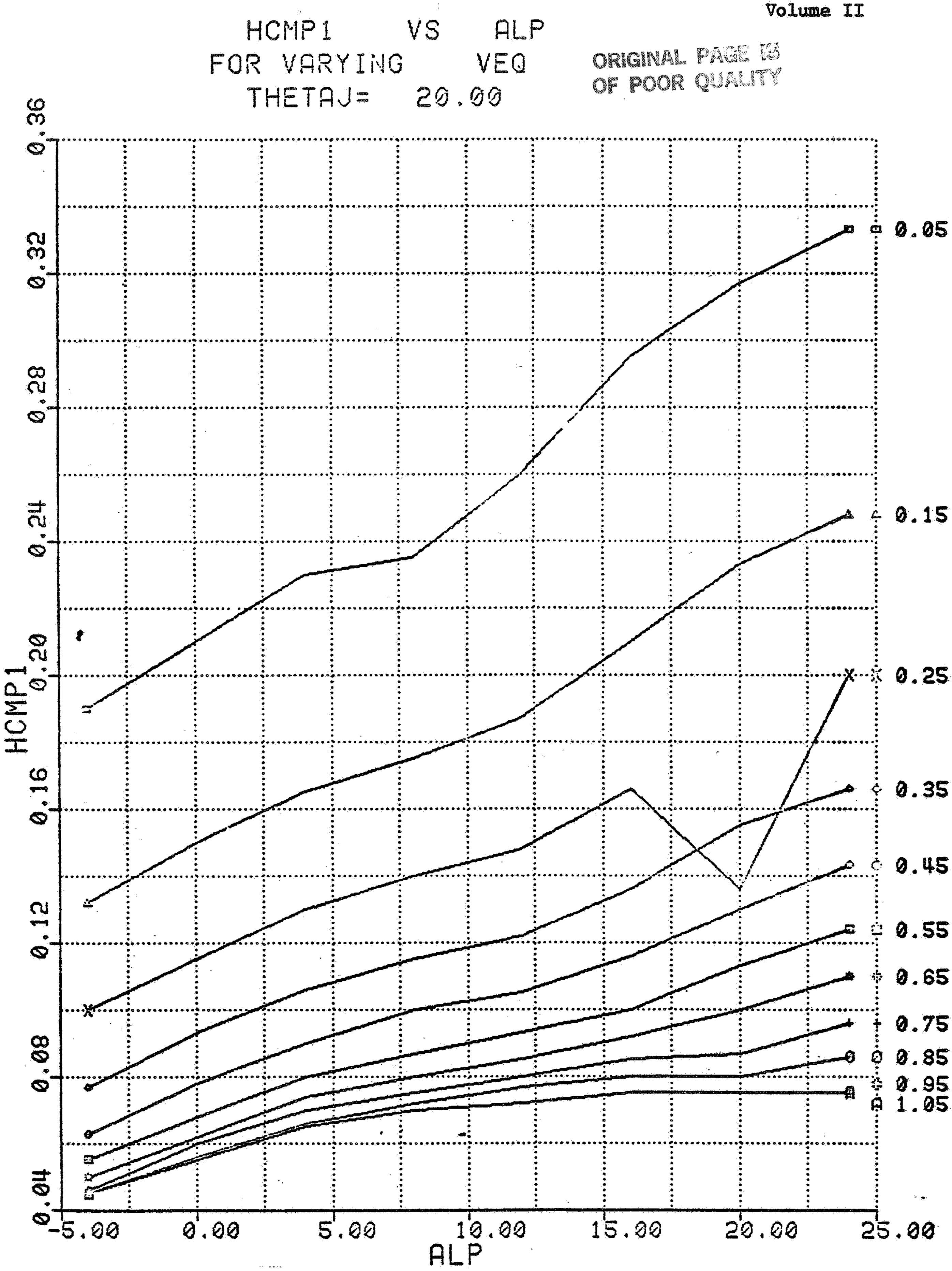


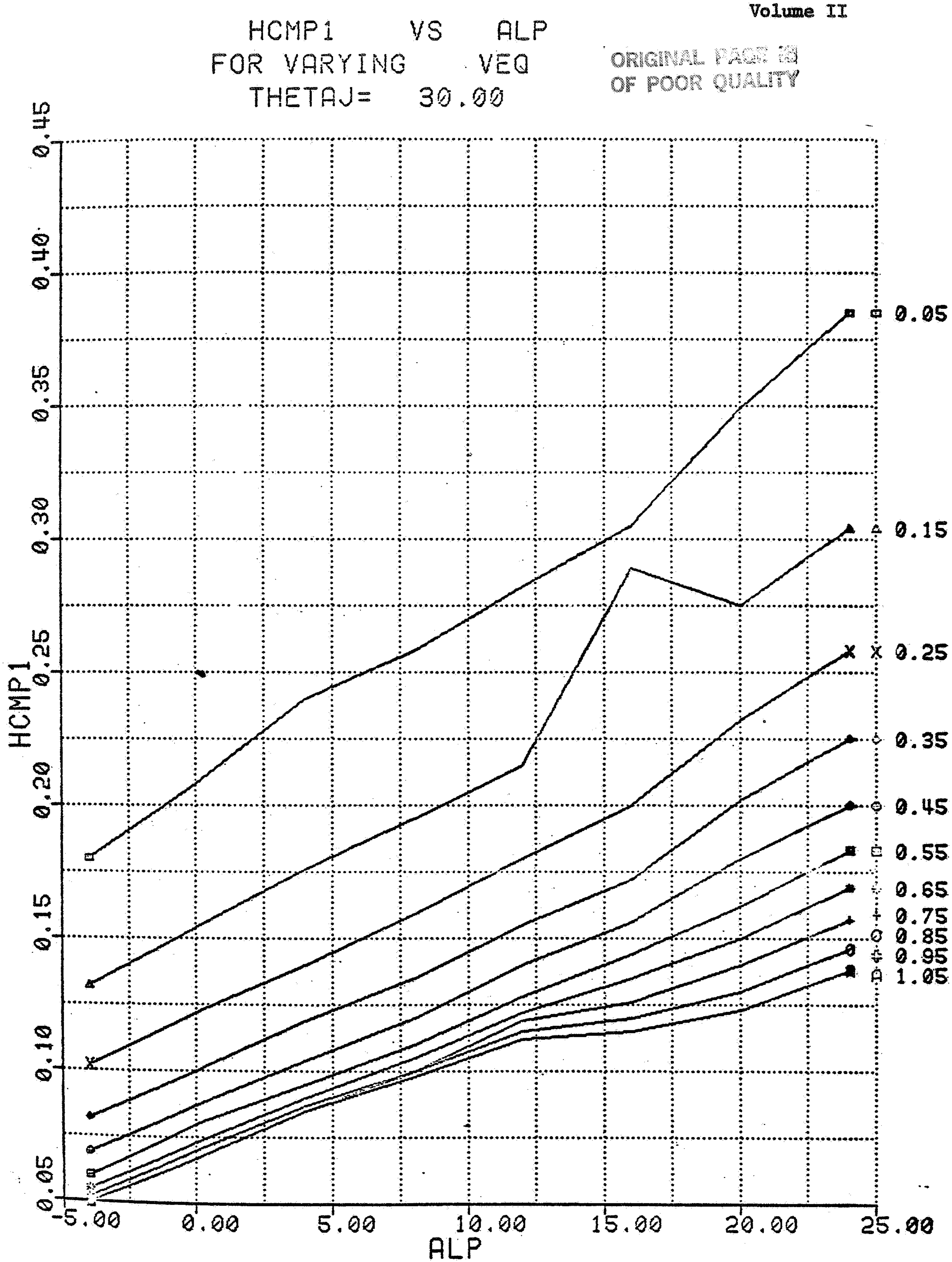

HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 0.00
HCMP1
ALP
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
-0.70
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
1.05
0.95
0.85
0.75
0.65
0.55
0.45
0.35
0.25
0.15
0.05


HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 5.00
HCMP1
ALP
0.28
0.24
0.20
0.16
0.12
0.08
0.04
0.00
-0.04
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65
0.75
0.85
0.95
1.05

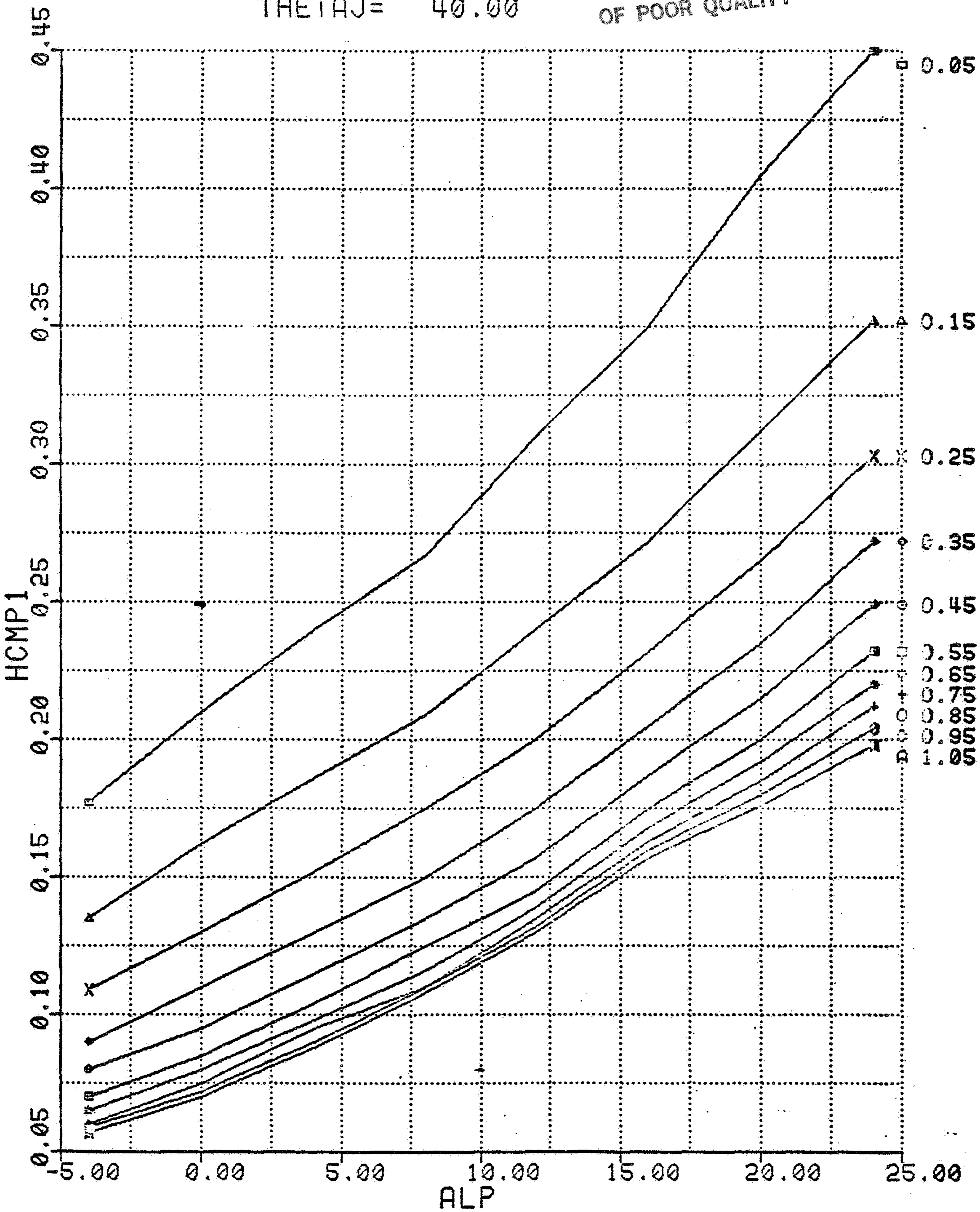
ORIGINAL PAGE IS
OF POOR QUALITY




HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 20.00
HCMP1
ALP
0.04
0.08
0.12
0.16
0.20
0.24
0.28
0.32
0.36
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65
0.75
0.85
0.95
1.05


HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 30.00
HCMP1
ALP
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65
0.75
0.85
0.95
1.05

HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 40.00



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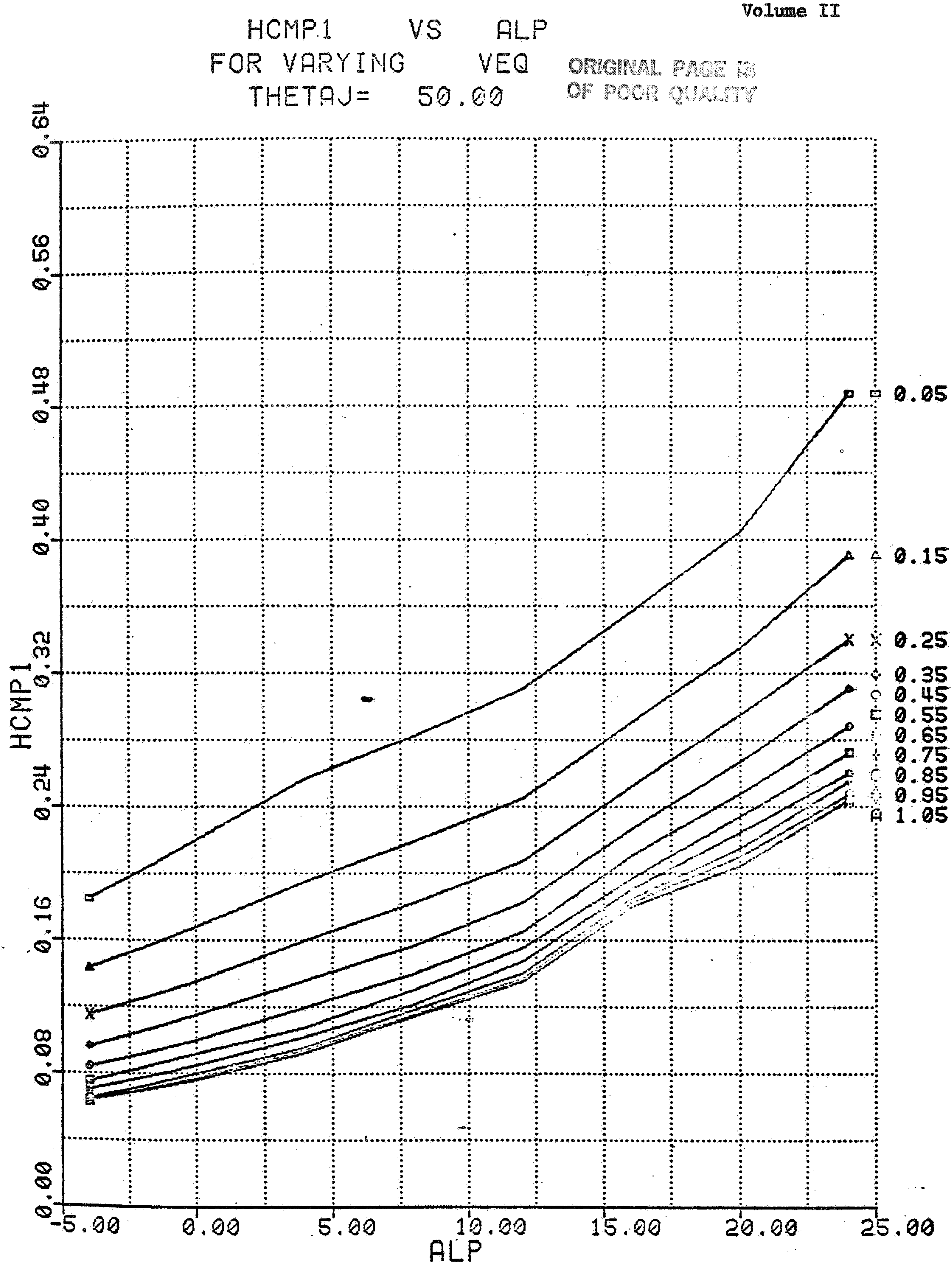
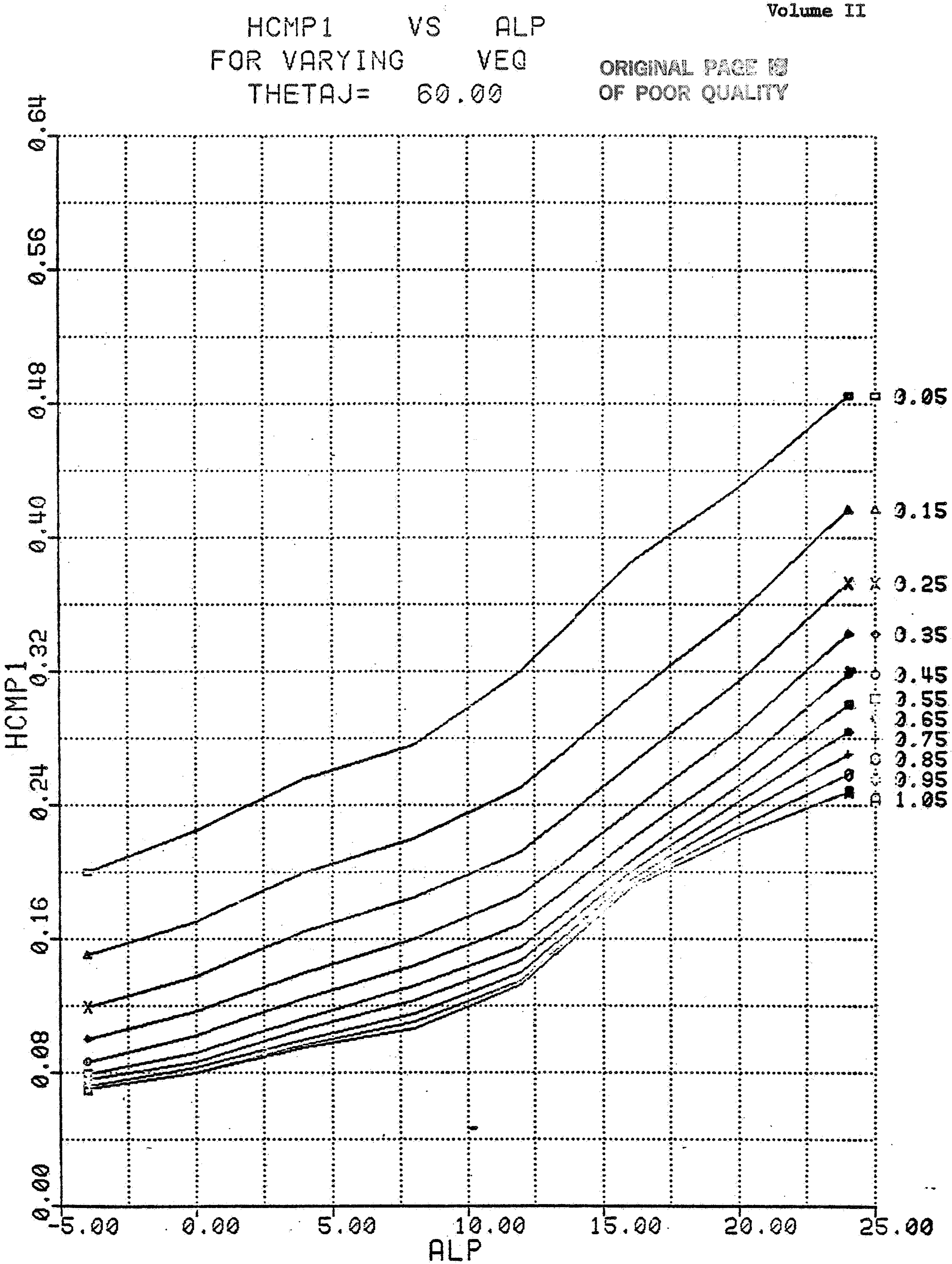
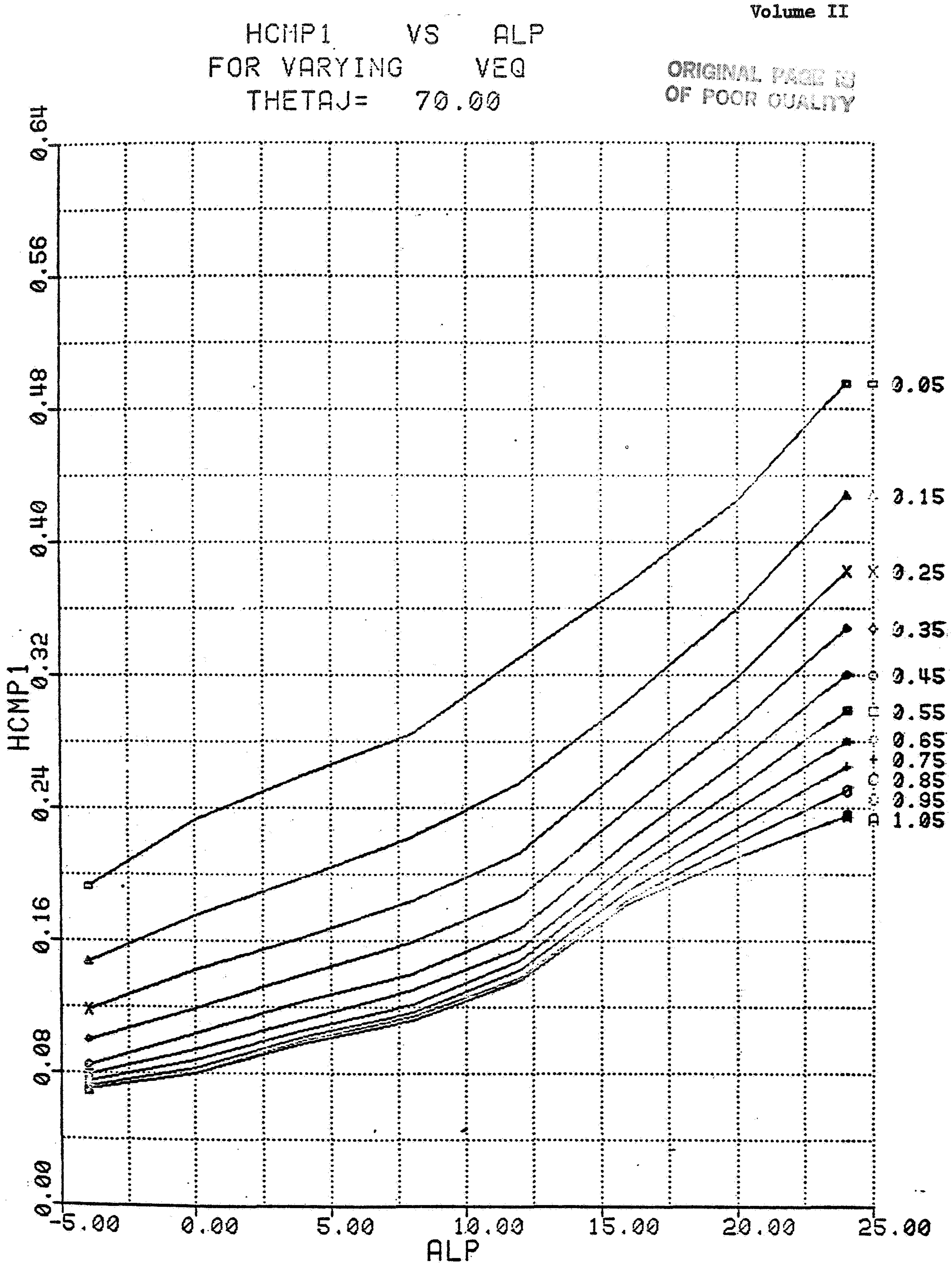
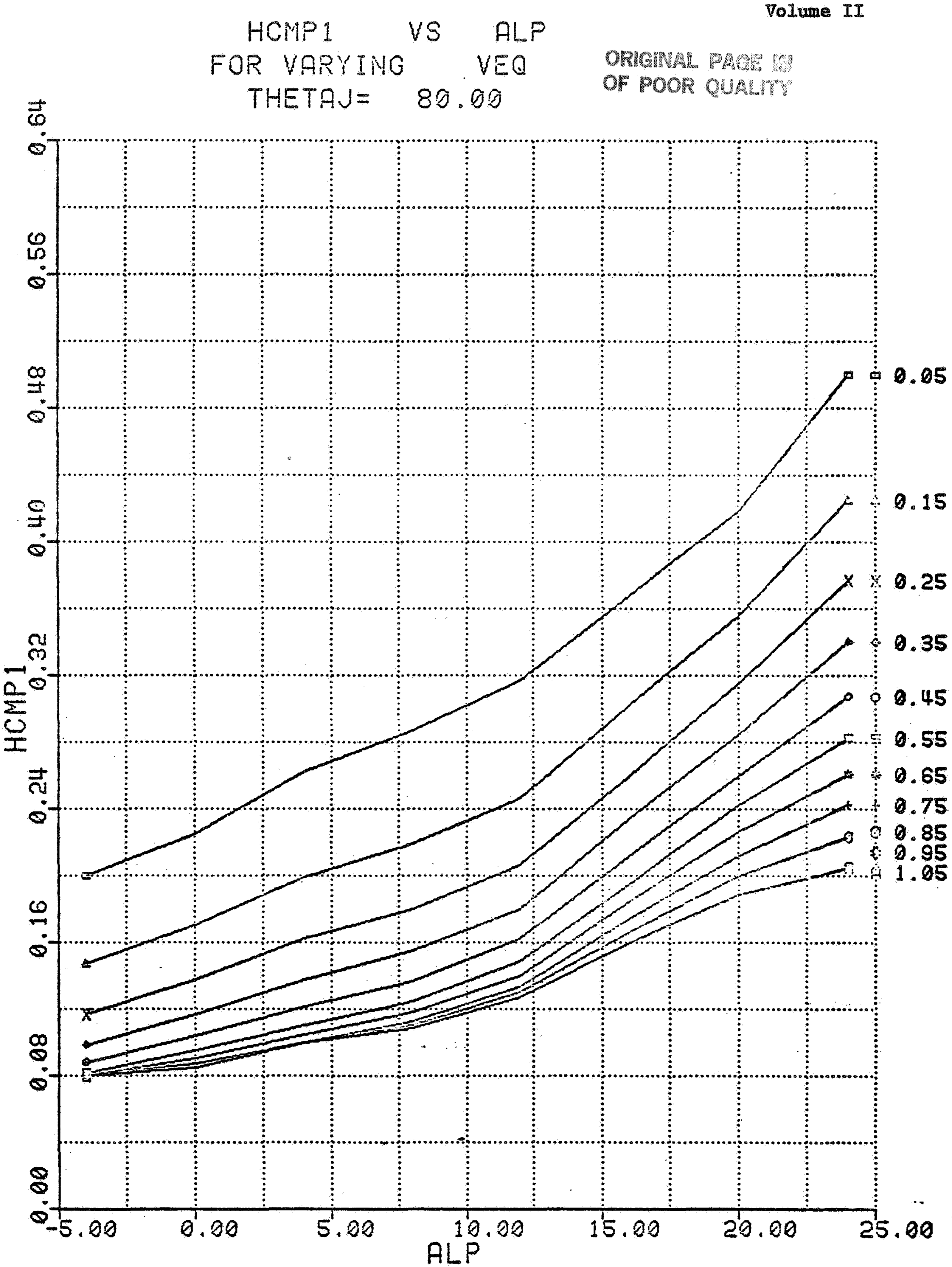


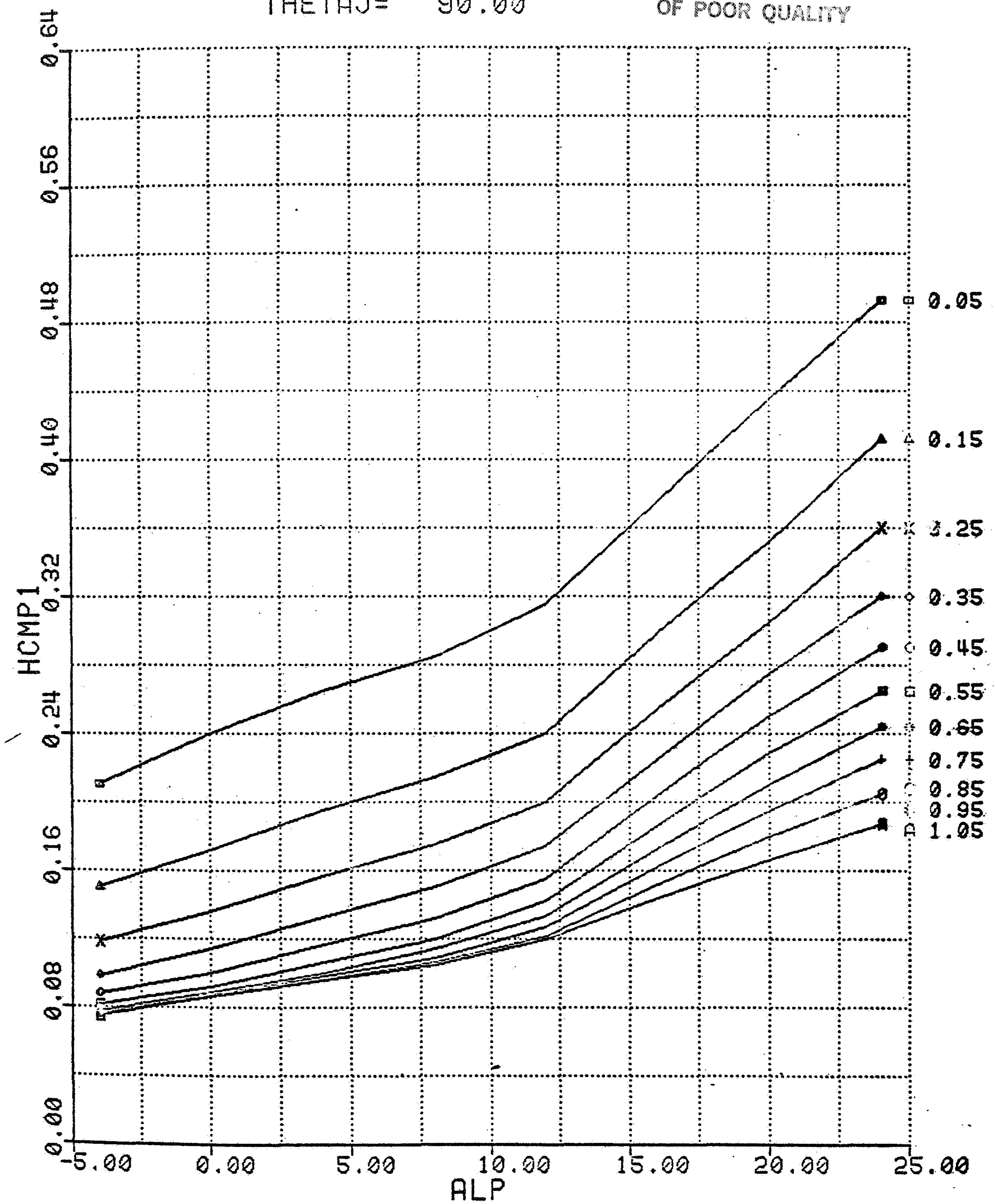

HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 60.00
HCMP1
ALP
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65
0.75
0.85
0.95
1.05

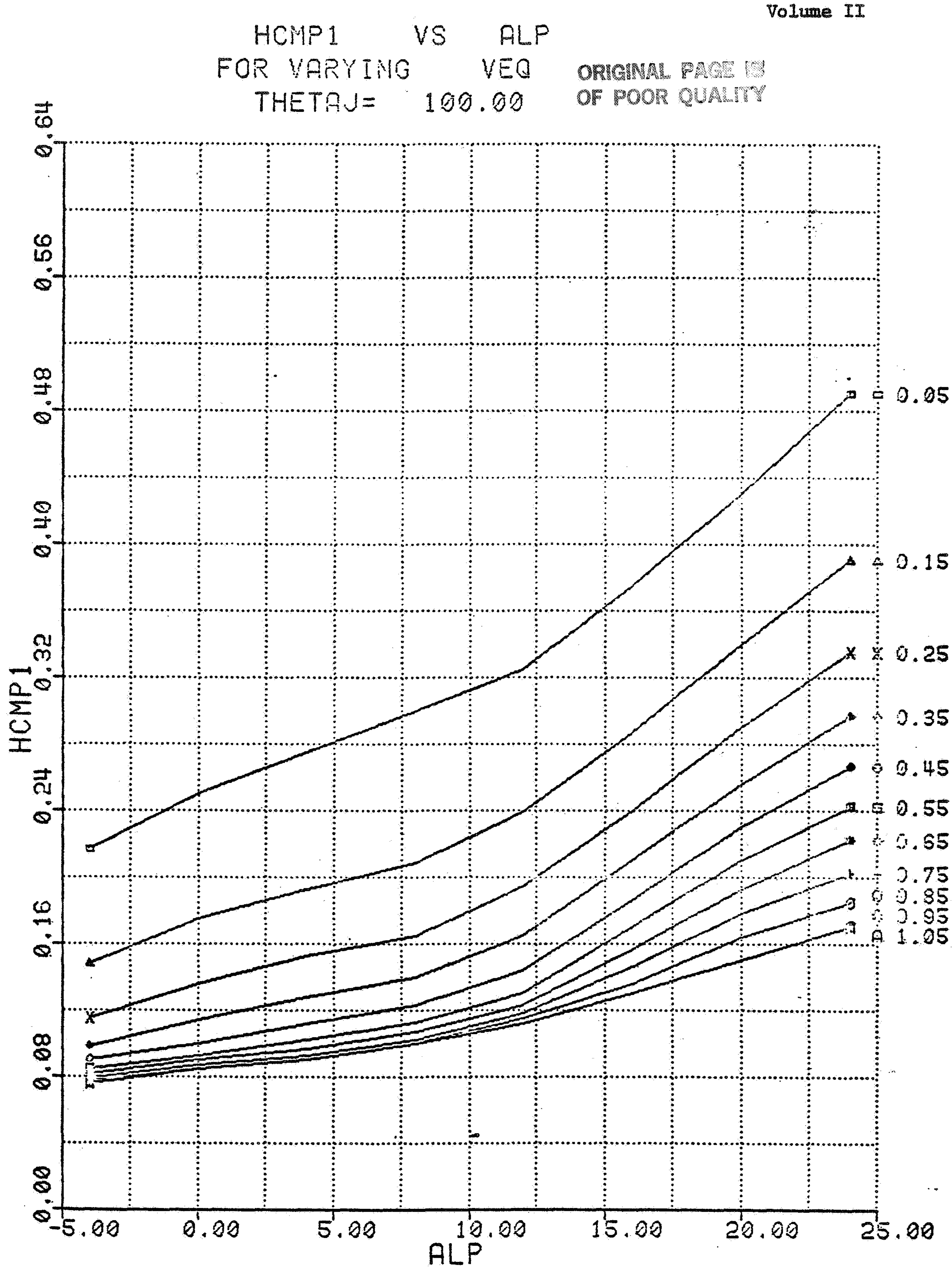
ORIGINAL PAGE IS
OF POOR QUALITY

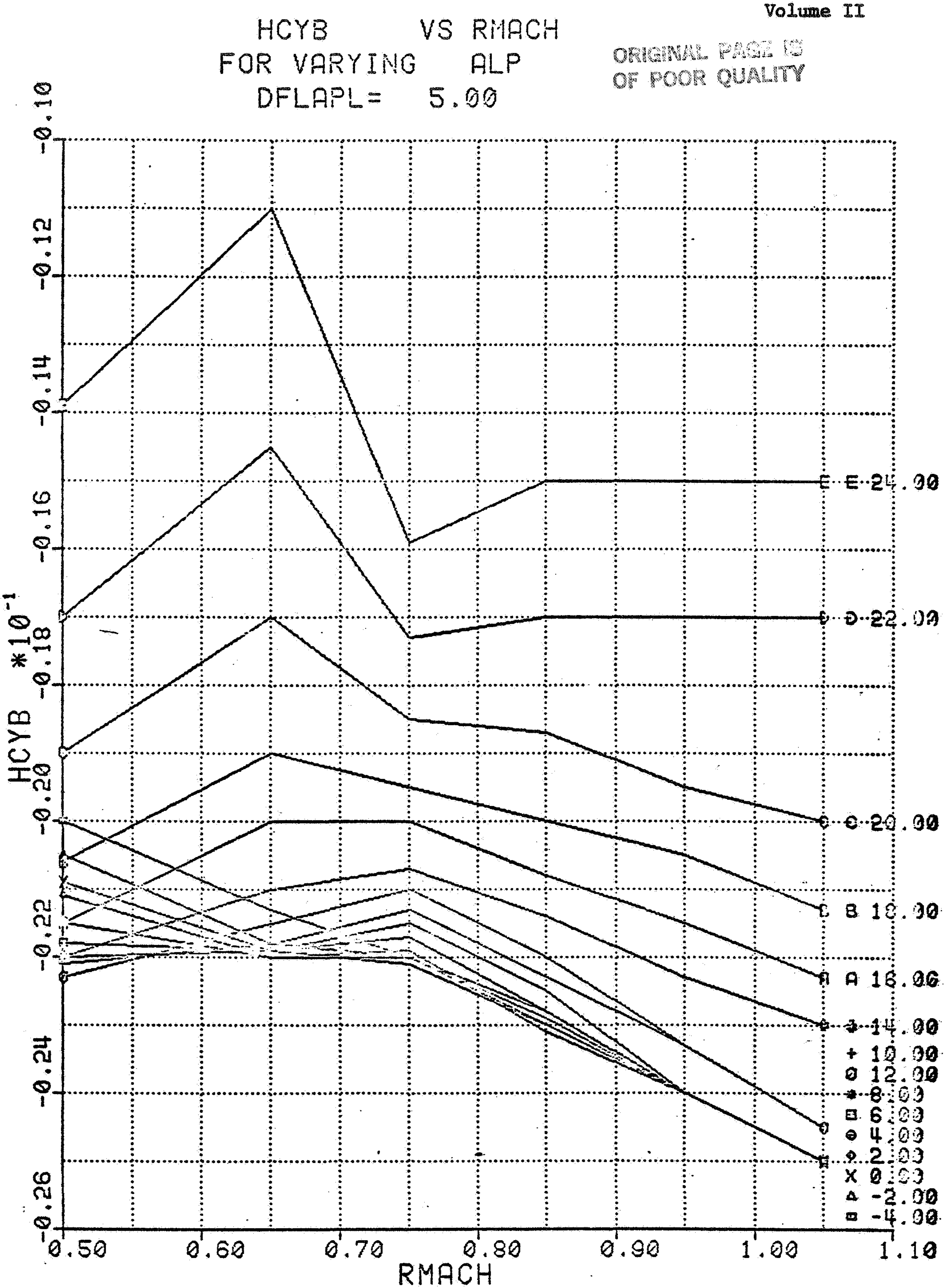



HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 80.00
HCMP1
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
ALP
0.05
0.15
0.25
0.35
0.45
0.55
0.65
0.75
0.85
0.95
1.05

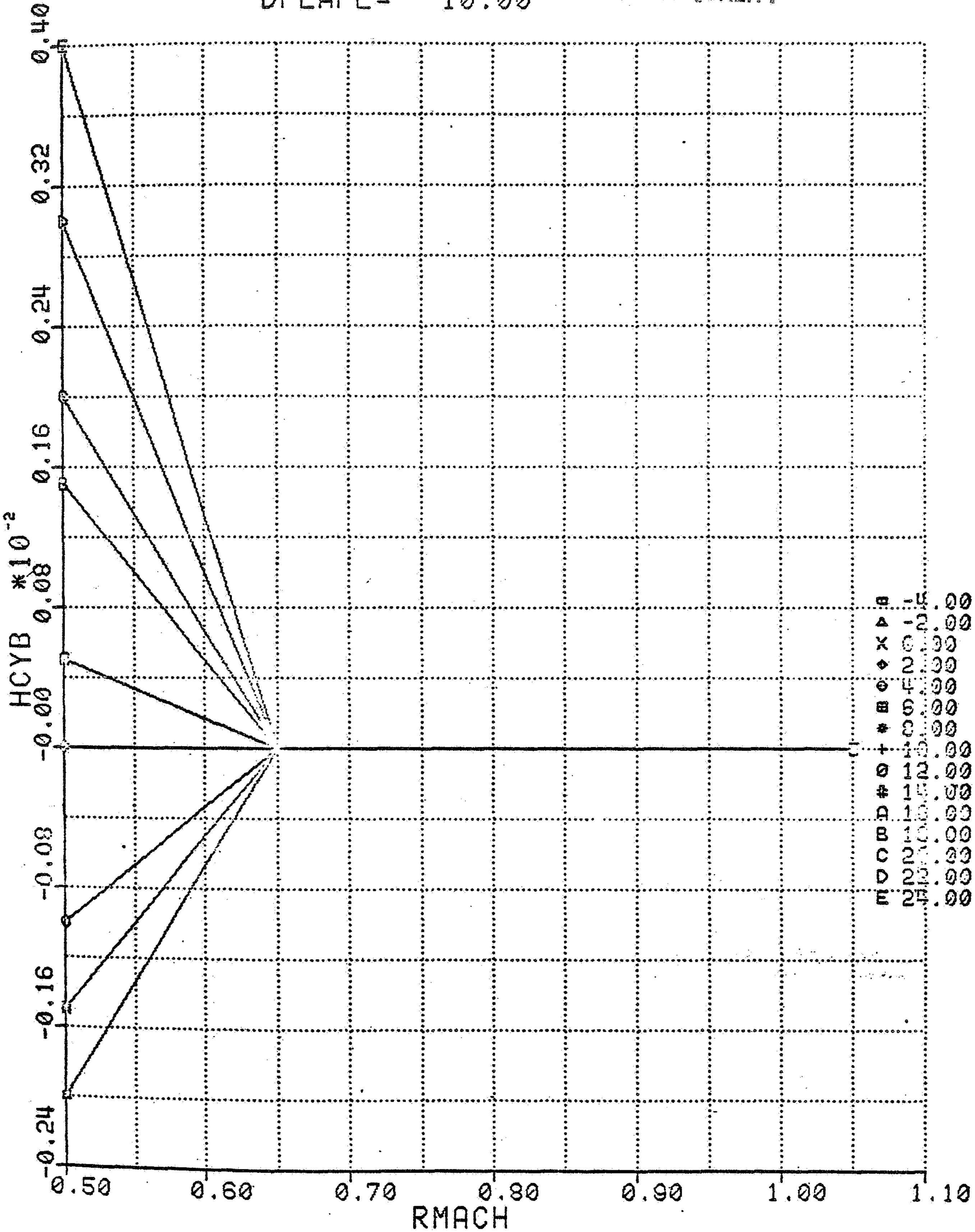
HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 90.00

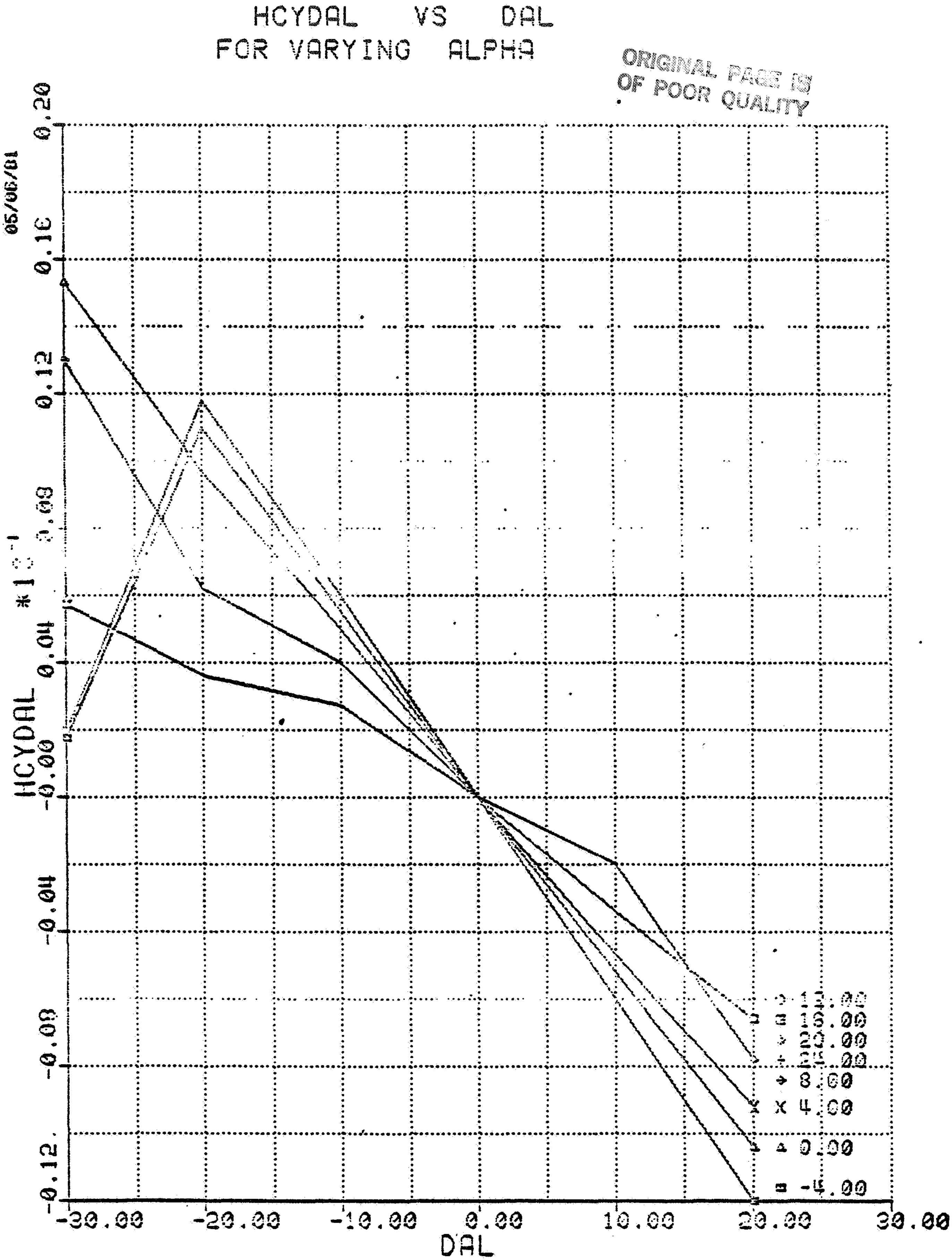


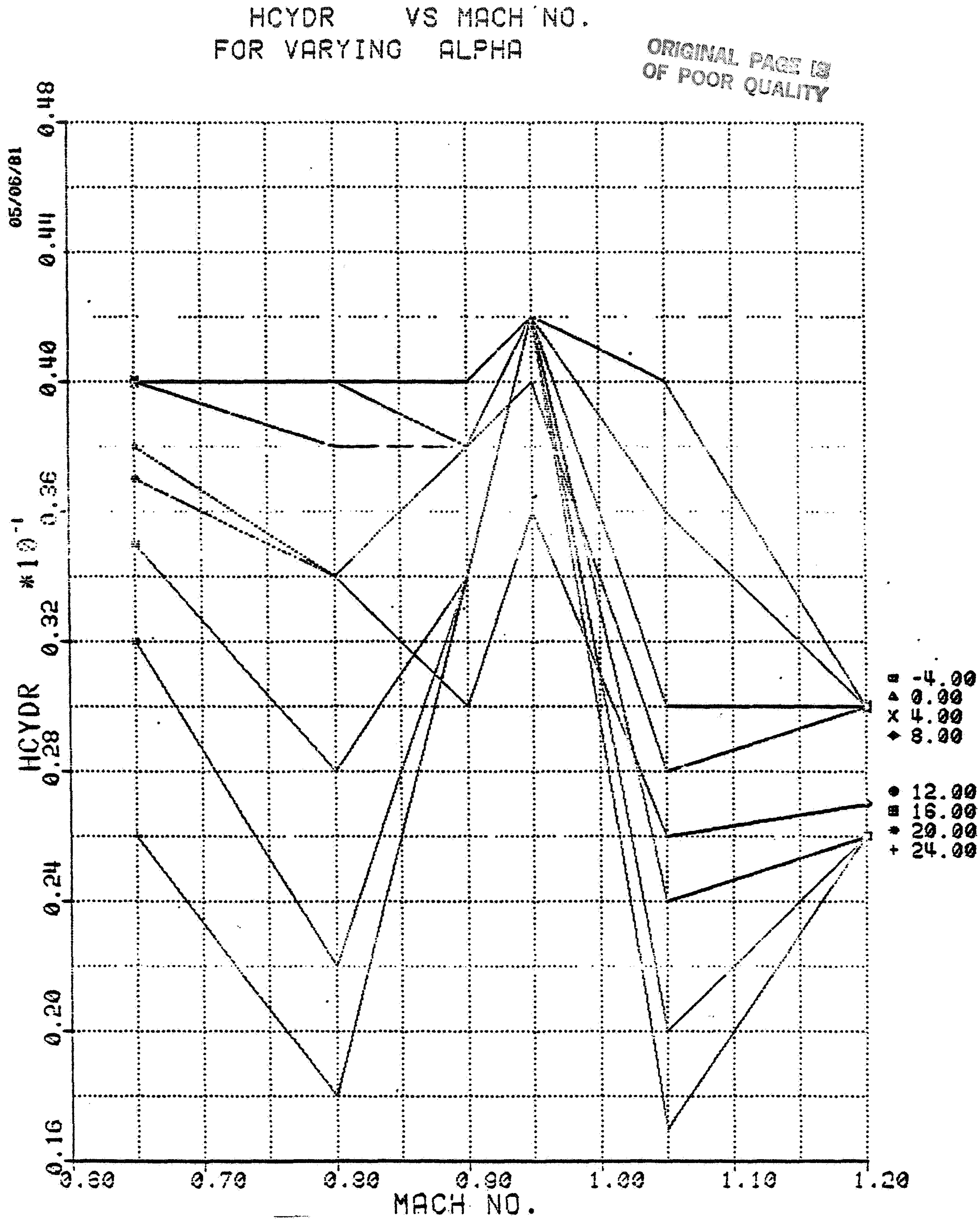

HCMP1 VS ALP
FOR VARYING VEQ
THETAJ= 100.00
ORIGINAL PAGE IS
OF POOR QUALITY
HCMP1
ALP
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
0.05
0.15
0.25
0.35
0.45
0.55
0.65
0.75
0.85
0.95
1.05


HCYB VS RMACH
FOR VARYING ALP
DFLAPL= 5.00
HCYB *10^-1
-0.10
-0.12
-0.14
-0.16
-0.18
-0.20
-0.22
-0.24
-0.26
0.50
0.60
0.70
0.80
0.90
1.00
1.10
RMACH
E 24.00
D 22.00
C 20.00
B 18.00
A 16.00
14.00
+ 10.00
12.00
8.00
6.00
4.00
2.00
X 0.00
-2.00
-4.00

HCYB VS RMACH
FOR VARYING ALP
DFLAPL= 10.00

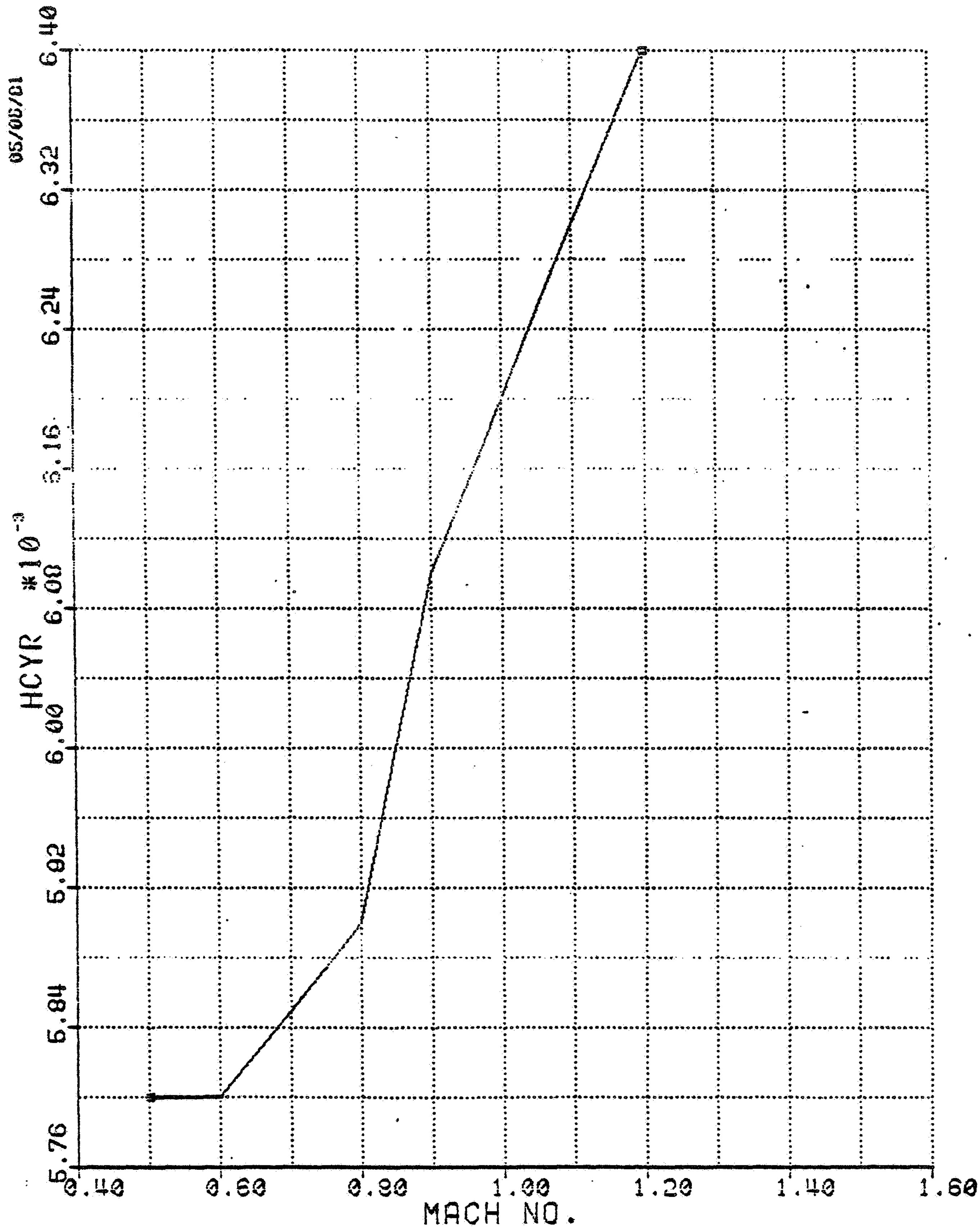



HCYDAL VS DAL
FOR VARYING ALPHA
ORIGINAL PAGE IS
OF POOR QUALITY
05/06/81
HCYDAL *10⁻¹
0.20
0.16
0.12
0.08
0.04
-0.00
-0.04
-0.08
-0.12
-30.00
-20.00
-10.00
0.00
10.00
20.00
30.00
DAL
12.00
16.00
20.00
24.00
8.00
4.00
0.00
-4.00


HCYDR VS MACH NO.
FOR VARYING ALPHA
ORIGINAL PAGE IS
OF POOR QUALITY
05/06/81
HCYDR *10^-1
0.16
0.20
0.24
0.28
0.32
0.36
0.40
0.44
0.48
0.60
0.70
0.80
0.90
1.00
1.10
1.20
MACH NO.
-4.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00

ORIGINAL PAGE IS
OF POOR QUALITY

HCYR VS MACH NO.



GLOSSARY OF TERMS

ABETAP	Absolute value of BETAP
AIL D	Aileron deflection in degrees
ALP	Angle of attack in degrees
ALPC	Corrected angle of attack in degrees used in longitudinal data
ALPHA	Angle of attack in degrees
ALPT	Tail angle of attack in degrees
ALT	Altitude in feet
BETAP	Angle of sideslip (angle in body-fixed x-y plane between the projection of the relative wind vector and the body x-axis)
DAL	Left aileron deflection in degrees
DELTT2	Ram recovery ratio
DFLAPL,DFLPL	Left flap deflection in degrees
DHTD	Stabilator deflection in degrees
FG/FGMAX	Percent maximum gross thrust
FLAP	Average flap deflection in degrees
H	Altitude in feet
HP	Height above ground (to the bottom of extended main gear with aircraft at nominal attitude $\theta = 7.5°$)
MACH	Mach number
PNFRPM	Engine fan speed
PNOZPOS	Nozzle angle in degrees
PRESHPI	Atmospheric static pressure in pounds/inch^2
PSA	Power spindle angle in degrees
RWTOT	Total RCS bleed rate in pounds/sec
SUCAL	Calibrated airspeed x-component in knots
TAMB	T_{AMB}(°R)/518.6°R
TERM	Body-axis roll angle with sign of BETAP
THALP	Pitch attitude, angle of attack, or a blend of the two depending on the value of VEQ
THETAJ,THETJ	Nozzle angle in degrees
VEQ	Square root of the ratio of freestream dynamic pressure to jet dynamic pressure
VET	Bounded VEQ
YMPHIE	Lateral-directional bias term
YPHIE	Phi bias term

APPENDIX D

SIMULATION RUN

SAMPLE OUTPUT

82/11/15. 13.38.43. NOS 1 - L552. ETMHQ6H PRIORITY P10 MCAUTO - CYBER 760-11 76C11.

YAV8B
SIMULATION
RUN
82/11/15
13.38.43

CATALOG OF YLDFL 82/11/15. 13.38.52. PAGE 1

REC	NAME	TYPE	FILE LENGTH	CKSUM	DATE	COMMENTS
1	YAV88	REL	334	3363	82/11/09.	PROGRAM OPT=2
	YAV88					
	INPUT#					
	OUTPUT#					
	TAPE3#					
	TAPE5#					
	TAPE6#					
2	I50MS	REL	242	0512	82/11/09.	SUBROUTINEOPT=2
	I50MS					
	I50ONCE					
3	AERODAT	REL	42272	0504	82/11/09.	SUBROUTINEOPT=2
	AERODAT					
4	AEROY88	REL	14332	3520	82/11/09.	SUBROUTINEOPT=2
	AEROY88					
5	YENGD	REL	5012	5400	82/11/09.	SUBROUTINEOPT=2
	YENGD					
6	ENG08	REL	4705	4705	82/11/09.	SUBROUTINEOPT=2
	ENG08					
7	AC07	REL	76	4100	82/11/09.	SUBROUTINEOPT=2
	AC07					
8	RCS07	REL	1676	3134	82/11/09.	SUBROUTINEOPT=2
	RCS07					
9	PFC07	REL	1416	7036	82/11/09.	SUBROUTINEOPT=2
	PFC07					
10	SFC07	REL	1076	1614	82/11/09.	SUBROUTINEOPT=2
	SFC07					
11	WTBAL07	REL	607	2277	82/11/09.	SUBROUTINEOPT=2
	WTBAL07					
12	TEOM1	REL	532	3205	82/10/22.	SUBROUTINEOPT=2
	TEOM1					
13	TEOM2	REL	147	4714	82/10/22.	SUBROUTINEOPT=2
	TEOM2					
14	REOM1	REL	463	2523	82/10/22.	SUBROUTINEOPT=2
	REOM1					
15	REOM2	REL	273	5171	82/10/22.	SUBROUTINEOPT=2
	REOM2					
16	STNDAY	REL	402	6163	82/11/09.	SUBROUTINEOPT=2
	STNDAY					
17	ATMOS	REL	144	3540	82/11/09.	SUBROUTINEOPT=2
	ATMOS					
18	CARDS	REL	364	0301	82/10/11.	SUBROUTINEOPT=2
	CARDS					
19	F1A	REL	274	3575	82/09/15.	FUNCTION OPT=2
	F1A					
	F2A					
	F2B					
	F2C					
	F1B					
20	FSRCH	REL	74	4301	82/09/15.	SUBROUTINEOPT=2
	FSRCH					
21	FCALC	REL	54	7046	82/09/15.	SUBROUTINEOPT=2
	FCALC					
22	F3A	REL	225	6735	82/09/15.	FUNCTION OPT=2
	F3A					
	F3D					

ORIGINAL PAGE IS
OF POOR QUALITY

```
       CATALOG OF YLOFL          FILE    1                                82/11/15. 13.38.52.     PAGE     2
REC    NAME        TYPE        LENGTH  CKSUM     DATE      COMMENTS
 23    FMMPLY      REL            150   0354  82/09/15. SUBROUTINEOPT=2
         FMMPLY
 24    FMTRAN      REL             40   7440  82/09/15. SUBROUTINEOPT=2
         FMTRAN
 25    RTPDATA     REL           1120   2673  82/11/09. SUBROUTINEOPT=2
         RTPDATA
         IRTPDAT
         FRTPDAT
 26    RTP         REL           1362   5035  82/10/14. SUBROUTINEOPT=2
         RTP
         IRTP
         FRTP
 27    RTPO        REL             27   0715  82/10/14.
         RTPO
 28    MSGABT      REL             24   3116  82/08/19.
         MSGABT
 29    LOCBUF      REL             42   3743  82/08/19.
         LOCBUF
         GETFIT
         IBUFCPT

       * EOI *        SUM =    105611
```

```
                CATALOG OF YLOFL                                        82/11/15. 13.38.52.      PAGE    3
REC   NAME         TYPE        FILE       2
                              LENGTH    CKSUM     DATE     COMMENTS

      * EOI *       SUM =         0
```

```
                                        82/11/15.      13.38.54.             PAGE NO.    1
     2      150        .80000000E+01
     2     1011        .35200000E+05
     2     1030        .68500000E+03
     2     1031       0.
     2     1040        .69700000E+00
     2     1103        .55000000E+01
     2     1117        .55000000E+01
     2     1118       0.
     1     1195                    1
     2     1273      -.57967850E+04
     2     1274      -.91100000E+03
     2     1275      -.17114000E+04
     1     1495                    0
     1     1496                    0
     1     1497                    0
     1     1627                    0
     1     1635                    1
     2     1776        .40780000E+02
     2     1777        .10400000E+01
     2     1782        .48880000E+04
     2     1816        .10000000E+01
     2     1819        .49500000E+03
     1     1882                    0
     1     1959                   62
  END OF DATA CARD SET
 START RUN NO.    1      13.38.54.
  RTP END - MISS =       0
```

```
        STANDARD PRINT -- NAMELIST OPTIONS

RUN SELECTION
   NUMBER OF CONSECUTIVE RUNS     NRUNS    =  100
   FILE NUMBERS OF RUNS DESIRED   IFILES   =    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
         (MAX.=20)

PRINT SELECTION                   IBLOCK   =    0
   COLUMN              (IBLOCK=0)
   BLOCK               (IBLOCK=1)
   BLOCK WITH NAMES IN
        TIME HISTORY (IBLOCK=2)
   COLUMN WITH INCREASED
        ACCURACY       (IBLOCK=3)

PARAMETER SELECTION
   LIMIT NO. OF PARAMETERS        NPLIM    =    0
   PAGE PRINT FLAGS               IP   (  1)=   1    1    1    1    1    1    1    1    1    1    1    1    1    1    1    1    1    1    1    1
   PARAMETER RE-ORDERING
         INDICES                  IXR  (  1)=   1    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
   PARAMETER OCTAL PRINT
         INDICES                  IXOCT(  1)=   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

TIME TO PRINT
   PRINT INTERVAL                 DP       =      .100
   START TIMES(MAX.=10)           TSTART   =     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
   STOP TIMES (MAX.=10)           TSTOP    =90000.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
   LAST PASS OF DATA PRINT FLAG   LASTPAS  =    1

NAMES OVERRIDE FLAG               INAMES   =    0
   DATA CARD FORMAT  (I10,7A10)

CLASSIFICATION OVERRIDE           ICLASS   =    1
   FROM DATA TAPE SOR(ICLASS=0)
   --BLANK--          (ICLASS=1)
   CONFIDENTIAL       (ICLASS=2)
   SECRET             (ICLASS=3)

LOWCORE OPTION FLAG               LOWCORE  =    0

OLD TAPES ONLY
   FIRST/LAST INDICES
      START OF RUN DATA           ISDATA   =    0    0
      END OF RUN DATA             IE       =    0    0
```

```
                    RUN NUMBER   1    82/11/15.  13.38.54.     NP =  77    NB =  462     DIGITAL     DTBUF =   .100
                                                                                                     DP    =   .100
PAGE
PRINT  PARAMETERS                          TIME HISTORY POINTERS AND NAMES
1  YES    2 TO 11          NPC  70  CASE 1959  MACH 1040  ALT  1011  QBAR 1039  GW   1251  FUEL 1782  WATER 1819  FSCG 1253  WLCG 1255
2  YES   12 TO 21   BLCG  1254  IXX  1256  IYY  1257  IZZ  1258  IXZ  1259  GEAR 1883  LID  1639  ALPHA 1117  BETA 1118  GAMMAV 1031
3  YES   22 TO 31   STKLON 1478 DH   1503  STKLAT 1479 DAL 1505  DAR  1506  DFLAPL 1637 DFLAPR 1638 PFDAL 1480  DR  1513  THETAJ 1788
4  YES   32 TO 41   NFC   1805  NF   1804  INAIR 1825 FGTOT 1769 VE   1412  DRAGSCB 1315 DRAGIBL 1750 DRAGRAM 1812 TOTBLO 1657 PHI 1104
5  YES   42 TO 51   THETA 1103  PSI  1102  PDEG 1732  QDEG 1733  RDEG 1734  NZ   2000  XACC 1051  YACC 1052  ZACC 1053  PDDEG 1943
6  YES   52 TO 61   QDDEG 1944  RDDEG 1945 XTOT 1973  YTOT 1974  ZTOT 1975  LTOT 1137  MTOT 1138  NTOT 1139  XAERO 1326 YAERO 1327
7  YES,  62 TO 71   ZAERO 1328  LAERO 1329 MAERO 1330 NAERO 1331 XFG  1751  YFG  1752  ZFG  1753  LFG  1754  MFG  1755  NFG  1756
8  YES   72 TO 77   XRCS  1651  YRCS 1652  ZRCS 1653  LRCS 1654  MRCS 1655  NRCS 1656

START OF RUN DATA
          1182        1251        1782        1819        1253        1255        1254        1256        1257        1258
      TEMPHF      GW          FUEL        WATER       FSCG        WLCG        BLCG        IXX         IYY         IZZ
       -56.740   19230.000    4888.000     495.000     349.108      97.700           0    9405.224   32089.480   39046.835
          1259        1883        1639
      IXZ         GEAR        LID
      1509.650           0           0
```

RUN NUMBER 1 82/11/15. 13.38.54. PAGE 1 - 1

TIME	NPC 2 70	CASE 3 1959	MACH 4 1040	ALT 5 1011	QBAR 6 1039	GW 7 1251	FUEL 8 1782	WATER 9 1819	FSCG 10 1253	WLCG 11 1255
0.000	77	62	.696	35200.000	190.516	19230.000	4888.000	495.000	349.108	97.700
.100	77	62	.696	35200.021	190.499	19230.000	4888.000	495.000	349.108	97.700
.200	77	62	.696	35200.087	190.465	19230.000	4888.000	495.000	349.108	97.700
.300	77	62	.696	35200.200	190.429	19230.000	4888.000	495.000	349.108	97.700
.400	77	62	.696	35200.360	190.390	19230.000	4888.000	495.000	349.108	97.700
.500	77	62	.696	35200.573	190.346	19230.000	4888.000	495.000	349.108	97.700
.600	77	62	.696	35200.841	190.297	19230.000	4888.000	495.000	349.108	97.700
.700	77	62	.696	35201.170	190.243	19230.000	4888.000	495.000	349.108	97.700
.800	77	62	.696	35201.564	190.183	19230.000	4888.000	495.000	349.108	97.700
.900	77	62	.695	35202.027	190.117	19230.000	4888.000	495.000	349.108	97.700
1.000	77	62	.695	35202.564	190.047	19230.000	4888.000	495.000	349.108	97.700
1.100	77	62	.695	35203.176	189.971	19230.000	4888.000	495.000	349.108	97.700
1.200	77	62	.695	35203.868	189.890	19230.000	4888.000	495.000	349.108	97.700
1.300	77	62	.695	35204.641	189.806	19230.000	4888.000	495.000	349.108	97.700
1.400	77	62	.695	35205.496	189.718	19230.000	4888.000	495.000	349.108	97.700
1.500	77	62	.695	35206.434	189.627	19230.000	4888.000	495.000	349.108	97.700
1.600	77	62	.694	35207.455	189.533	19230.000	4888.000	495.000	349.108	97.700
1.700	77	62	.694	35208.560	189.437	19230.000	4888.000	495.000	349.108	97.700
1.800	77	62	.694	35209.748	189.338	19230.000	4888.000	495.000	349.108	97.700
1.900	77	62	.694	35211.017	189.235	19230.000	4888.000	495.000	349.108	97.700
2.000	77	62	.694	35212.368	189.130	19230.000	4888.000	495.000	349.108	97.700
2.100	77	62	.693	35213.797	189.023	19230.000	4888.000	495.000	349.108	97.700
2.200	77	62	.693	35215.304	188.914	19230.000	4888.000	495.000	349.108	97.700
2.300	77	62	.693	35216.887	188.802	19230.000	4888.000	495.000	349.108	97.700
2.400	77	62	.693	35218.545	188.686	19230.000	4888.000	495.000	349.108	97.700
2.500	77	62	.693	35220.276	188.565	19230.000	4888.000	495.000	349.108	97.700
2.600	77	62	.692	35222.079	188.438	19230.000	4888.000	495.000	349.108	97.700
2.700	77	62	.692	35223.956	188.304	19230.000	4888.000	495.000	349.108	97.700
2.800	77	62	.692	35225.907	188.161	19230.000	4888.000	495.000	349.108	97.700
2.900	77	62	.692	35227.933	188.009	19230.000	4888.000	495.000	349.108	97.700
3.000	77	62	.691	35230.034	187.851	19230.000	4888.000	495.000	349.108	97.700
3.100	77	62	.691	35232.212	187.687	19230.000	4888.000	495.000	349.108	97.700
3.200	77	62	.691	35234.465	187.522	19230.000	4888.000	495.000	349.108	97.700
3.300	77	62	.690	35236.789	187.359	19230.000	4888.000	495.000	349.108	97.700
3.400	77	62	.690	35239.179	187.202	19230.000	4888.000	495.000	349.108	97.700
3.500	77	62	.690	35241.628	187.053	19230.000	4888.000	495.000	349.108	97.700
3.600	77	62	.690	35244.129	186.915	19230.000	4888.000	495.000	349.108	97.700
3.700	77	62	.689	35246.673	186.786	19230.000	4888.000	495.000	349.108	97.700
3.800	77	62	.689	35249.253	186.664	19230.000	4888.000	495.000	349.108	97.700
3.900	77	62	.689	35251.865	186.545	19230.000	4888.000	495.000	349.108	97.700
4.000	77	62	.689	35254.506	186.425	19230.000	4888.000	495.000	349.108	97.700
4.100	77	62	.688	35257.177	186.300	19230.000	4888.000	495.000	349.108	97.700
4.200	77	62	.688	35259.881	186.168	19230.000	4888.000	495.000	349.108	97.700
4.300	77	62	.688	35262.625	186.030	19230.000	4888.000	495.000	349.108	97.700
4.400	77	62	.688	35265.416	185.886	19230.000	4888.000	495.000	349.108	97.700
4.500	77	62	.687	35268.262	185.738	19230.000	4888.000	495.000	349.108	97.700
4.600	77	62	.687	35271.170	185.588	19230.000	4888.000	495.000	349.108	97.700
4.700	77	62	.687	35274.144	185.439	19230.000	4888.000	495.000	349.108	97.700
4.800	77	62	.687	35277.187	185.293	19230.000	4888.000	495.000	349.108	97.700
4.900	77	62	.686	35280.298	185.151	19230.000	4888.000	495.000	349.108	97.700

ORIGINAL PAGE IS
OF POOR QUALITY

RUN NUMBER 1 82/11/15. 13.38.54. PAGE 1 - 2

TIME	2 70 NPC	3 1959 CASE	4 1040 MACH	5 1011 ALT	6 1039 QBAR	7 1251 GW	8 1782 FUEL	9 1819 WATER	10 1253 FSCG	11 1255 WLCG
5.000	77	62	.686	35283.474	185.015	19230.000	4888.000	495.000	349.108	97.700
5.100	77	62	.686	35286.709	184.883	19230.000	4888.000	495.000	349.108	97.700
5.200	77	62	.686	35289.997	184.757	19230.000	4888.000	495.000	349.108	97.700
5.300	77	62	.685	35293.330	184.634	19230.000	4888.000	495.000	349.108	97.700
5.400	77	62	.685	35296.701	184.512	19230.000	4888.000	495.000	349.108	97.700
5.500	77	62	.685	35300.107	184.389	19230.000	4888.000	495.000	349.108	97.700
5.600	77	62	.685	35303.545	184.265	19230.000	4888.000	495.000	349.108	97.700
5.700	77	62	.684	35307.014	184.136	19230.000	4888.000	495.000	349.108	97.700
5.800	77	62	.684	35310.516	184.004	19230.000	4888.000	495.000	349.108	97.700
5.900	77	62	.684	35314.054	183.867	19230.000	4888.000	495.000	349.108	97.700
6.000	77	62	.684	35317.632	183.726	19230.000	4888.000	495.000	349.108	97.700
6.100	77	62	.683	35321.255	183.581	19230.000	4888.000	495.000	349.108	97.700
6.200	77	62	.683	35324.924	183.434	19230.000	4888.000	495.000	349.108	97.700
6.300	77	62	.683	35328.643	183.286	19230.000	4888.000	495.000	349.108	97.700
6.400	77	62	.683	35332.412	183.137	19230.000	4888.000	495.000	349.108	97.700
6.500	77	62	.682	35336.231	182.988	19230.000	4888.000	495.000	349.108	97.700
6.600	77	62	.682	35340.100	182.839	19230.000	4888.000	495.000	349.108	97.700
6.700	77	62	.682	35344.010	182.690	19230.000	4888.000	495.000	349.108	97.700
6.800	77	62	.681	35347.984	182.542	19230.000	4888.000	495.000	349.108	97.700
6.900	77	62	.681	35351.996	182.393	19230.000	4888.000	495.000	349.108	97.700
7.000	77	62	.681	35356.053	182.244	19230.000	4888.000	495.000	349.108	97.700
7.100	77	62	.681	35360.154	182.096	19230.000	4888.000	495.000	349.108	97.700
7.200	77	62	.680	35364.297	181.947	19230.000	4888.000	495.000	349.108	97.700
7.300	77	62	.680	35368.483	181.797	19230.000	4888.000	495.000	349.108	97.700
7.400	77	62	.680	35372.711	181.648	19230.000	4888.000	495.000	349.108	97.700
7.500	77	62	.679	35376.980	181.499	19230.000	4888.000	495.000	349.108	97.700
7.600	77	62	.679	35381.290	181.350	19230.000	4888.000	495.000	349.108	97.700
7.700	77	62	.679	35385.641	181.200	19230.000	4888.000	495.000	349.108	97.700
7.800	77	62	.679	35390.031	181.051	19230.000	4888.000	495.000	349.108	97.700
7.900	77	62	.678	35394.459	180.902	19230.000	4888.000	495.000	349.108	97.700
8.000	77	62	.678	35398.924	180.752	19230.000	4888.000	495.000	349.108	97.700

RUN NUMBER 1 82/11/15. 13.38.54. PAGE 2 - 1

TIME	BLCG 12 1254	IXX 13 1256	IYY 14 1257	IZZ 15 1258	IXZ 16 1259	GEAR 17 1083	LID 18 1639	ALPHA 19 1117	BETA 20 1118	GAMMAV 21 1031
0.000	0	9405.224	32089.480	39046.835	1509.650	0	0	5.500	0	0
.100	0	9405.224	32089.480	39046.835	1509.650	0	0	5.496	5.176E-03	1.879E-02
.200	0	9405.224	32089.490	39046.835	1509.650	0	0	5.504	2.011E-02	5.610E-02
.300	0	9405.224	32089.480	39046.835	1509.650	0	0	5.537	4.942E-02	9.448E-02
.400	0	9405.224	32089.480	39046.835	1509.650	0	0	5.590	7.338E-02	.135
.500	0	9405.224	32089.480	39046.835	1509.650	0	0	5.658	.108	.178
.600	0	9405.224	32089.480	39046.835	1509.650	0	0	5.736	.146	.225
.700	0	9405.224	32089.480	39046.835	1509.650	0	0	5.817	.184	.276
.800	0	9405.224	32089.480	39046.835	1509.650	0	0	5.898	.221	.330
.900	0	9405.224	32089.480	39046.835	1509.650	0	0	5.975	.256	.388
1.000	0	9405.224	32089.480	39046.835	1509.650	0	0	6.043	.286	.450
1.100	0	9405.224	32089.480	39046.835	1509.650	0	0	6.103	.311	.514
1.200	0	9405.224	32089.480	39046.835	1509.650	0	0	6.153	.330	.580
1.300	0	9405.224	32089.480	39046.835	1509.650	0	0	6.192	.342	.648
1.400	0	9405.224	32089.480	39046.835	1509.650	0	0	6.219	.347	.717
1.500	0	9405.224	32089.480	39046.835	1509.650	0	0	6.237	.345	.787
1.600	0	9405.224	32089.480	39046.835	1509.650	0	0	6.244	.337	.857
1.700	0	9405.224	32089.480	39046.835	1509.650	0	0	6.242	.324	.927
1.800	0	9405.224	32089.480	39046.835	1509.650	0	0	6.232	.353	.997
1.900	0	9405.224	32089.480	39046.835	1509.650	0	0	6.216	.446	1.066
2.000	0	9405.224	32089.480	39046.835	1509.650	0	0	6.194	.635	1.134
2.100	0	9405.224	32089.480	39046.835	1509.650	0	0	6.170	.940	1.201
2.200	0	9405.224	32089.480	39046.835	1509.650	0	0	6.147	1.342	1.267
2.300	0	9405.224	32089.480	39046.835	1509.650	0	0	6.128	1.832	1.331
2.400	0	9405.224	32089.480	39046.835	1509.650	0	0	6.122	2.377	1.394
2.500	0	9405.224	32089.480	39046.835	1509.650	0	0	6.134	2.949	1.456
2.600	0	9405.224	32089.480	39046.835	1509.650	0	0	6.172	3.465	1.518
2.700	0	9405.224	32089.480	39046.835	1509.650	0	0	6.241	3.872	1.580
2.800	0	9405.224	32089.480	39046.835	1509.650	0	0	6.338	4.114	1.642
2.900	0	9405.224	32089.480	39046.835	1509.650	0	0	6.453	4.170	1.706
3.000	0	9405.224	32089.480	39046.835	1509.650	0	0	6.567	4.022	1.771
3.100	0	9405.224	32089.480	39046.835	1509.650	0	0	6.661	3.667	1.836
3.200	0	9405.224	32089.480	39046.835	1509.650	0	0	6.711	3.113	1.900
3.300	0	9405.224	32089.480	39046.835	1509.650	0	0	6.700	2.381	1.961
3.400	0	9405.224	32089.480	39046.835	1509.650	0	0	6.616	1.497	2.018
3.500	0	9405.224	32089.480	39046.835	1509.650	0	0	6.463	.491	2.069
3.600	0	9405.224	32089.480	39046.835	1509.650	0	0	6.253	-.577	2.113
3.700	0	9405.224	32089.480	39046.835	1509.650	0	0	6.013	-1.665	2.150
3.800	0	9405.224	32089.480	39046.835	1509.650	0	0	5.776	-2.717	2.182
3.900	0	9405.224	32089.480	39046.835	1509.650	0	0	5.581	-3.649	2.209
4.000	0	9405.224	32089.480	39046.835	1509.650	0	0	5.454	-4.402	2.234
4.100	0	9405.224	32089.480	39046.835	1509.650	0	0	5.410	-4.947	2.260
4.200	0	9405.224	32089.480	39046.835	1509.650	0	0	5.448	-5.252	2.289
4.300	0	9405.224	32089.480	39046.835	1509.650	0	0	5.554	-5.321	2.324
4.400	0	9405.224	32089.480	39046.835	1509.650	0	0	5.703	-5.160	2.364
4.500	0	9405.224	32089.480	39046.835	1509.650	0	0	5.866	-4.789	2.412
4.600	0	9405.224	32089.480	39046.835	1509.650	0	0	6.012	-4.236	2.465
4.700	0	9405.224	32089.480	39046.835	1509.650	0	0	6.118	-3.537	2.523
4.800	0	9405.224	32089.480	39046.835	1509.650	0	0	6.168	-2.731	2.582
4.900	0	9405.224	32089.480	39046.835	1509.650	0	0	6.159	-1.862	2.641

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TIME	BLCG 12 1254	IXX 13 1256	IYY 14 1257	IZZ 15 1258	IXZ 16 1259	GEAR 17 1083	LED 18 1639	ALPHA 19 1117	BETA 20 1118	GAMMAV 21 1031
5.000	0	9405.224	32089.480	39046.835	1509.650	0	0	6.095	-.974	2.697
5.100	0	9405.224	32089.480	39046.835	1509.650	0	0	5.992	-.107	2.749
5.200	0	9405.224	32089.480	39046.835	1509.650	0	0	5.871	.702	2.794
5.300	0	9405.224	32089.480	39046.835	1509.650	0	0	5.755	1.425	2.834
5.400	0	9405.224	32089.480	39046.835	1509.650	0	0	5.665	2.036	2.868
5.500	0	9405.224	32089.480	39046.835	1509.650	0	0	5.614	2.520	2.898
5.600	0	9405.224	32089.480	39046.835	1509.650	0	0	5.609	2.864	2.925
5.700	0	9405.224	32089.480	39046.835	1509.650	0	0	5.648	3.061	2.953
5.800	0	9405.224	32089.480	39046.835	1509.650	0	0	5.723	3.110	2.982
5.900	0	9405.224	32089.480	39046.835	1509.650	0	0	5.823	3.017	3.014
6.000	0	9405.224	32089.480	39046.835	1509.650	0	0	5.932	2.794	3.050
6.100	0	9405.224	32089.480	39046.835	1509.650	0	0	6.035	2.459	3.089
6.200	0	9405.224	32089.480	39046.835	1509.650	0	0	6.121	2.034	3.130
6.300	0	9405.224	32089.480	39046.835	1509.650	0	0	6.182	1.544	3.173
6.400	0	9405.224	32089.480	39046.835	1509.650	0	0	6.214	1.010	3.217
6.500	0	9405.224	32089.480	39046.835	1509.650	0	0	6.219	.482	3.262
6.600	0	9405.224	32089.480	39046.835	1509.650	0	0	6.201	-3.737E-02	3.306
6.700	0	9405.224	32089.480	39046.835	1509.650	0	0	6.166	-.517	3.349
6.800	0	9405.224	32089.480	39046.835	1509.650	0	0	6.123	-.937	3.391
6.900	0	9405.224	32089.480	39046.835	1509.650	0	0	6.079	-1.282	3.432
7.000	0	9405.224	32089.480	39046.835	1509.650	0	0	6.040	-1.541	3.472
7.100	0	9405.224	32089.480	39046.835	1509.650	0	0	6.010	-1.708	3.511
7.200	0	9405.224	32089.480	39046.835	1509.650	0	0	5.990	-1.780	3.549
7.300	0	9405.224	32089.480	39046.835	1509.650	0	0	5.980	-1.760	3.587
7.400	0	9405.224	32089.480	39046.835	1509.650	0	0	5.977	-1.655	3.624
7.500	0	9405.224	32089.480	39046.835	1509.650	0	0	5.979	-1.475	3.662
7.600	0	9405.224	32089.480	39046.835	1509.650	0	0	5.982	-1.233	3.698
7.700	0	9405.224	32089.480	39046.835	1509.650	0	0	5.986	-.943	3.734
7.800	0	9405.224	32089.480	39046.835	1509.650	0	0	5.989	-.623	3.770
7.900	0	9405.224	32089.480	39046.835	1509.650	0	0	5.991	-.288	3.804
8.000	0	9405.224	32089.480	39046.835	1509.650	0	0	5.993	4.478E-02	3.838

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TIME	STKLON	DH	STKLAT	DAL	DAR	DFLAPL	DFLAPR	PEDAL	DR	THETAJ
	22 1478	23 1503	24 1479	25 1505	26 1506	27 1637	28 1638	29 1480	30 1513	31 1788
0.000	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.100	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.200	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.300	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.400	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.500	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.600	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.700	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.800	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
.900	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.000	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.100	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.200	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.300	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.400	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.500	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.600	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
1.700	2.127	-.691	0	0	0	5.000	5.000	-8.501E-02	.601	3.004
1.800	2.127	-.691	0	0	0	5.000	5.000	-.255	1.803	3.004
1.900	2.127	-.691	0	0	0	5.000	5.000	-.425	3.005	3.004
2.000	2.127	-.691	0	0	0	5.000	5.000	-.595	4.207	3.004
2.100	2.127	-.691	0	0	0	5.000	5.000	-.705	4.985	3.004
2.200	2.127	-.691	0	0	0	5.000	5.000	-.755	5.338	3.004
2.300	2.127	-.691	0	0	0	5.000	5.000	-.780	5.514	3.004
2.400	2.127	-.691	0	0	0	5.000	5.000	-.780	5.514	3.004
2.500	2.127	-.691	0	0	0	5.000	5.000	-.685	4.843	3.004
2.600	2.127	-.691	0	0	0	5.000	5.000	-.495	3.500	3.004
2.700	2.127	-.691	0	0	0	5.000	5.000	-.305	2.157	3.004
2.800	2.127	-.691	0	0	0	5.000	5.000	-.157	1.107	3.004
2.900	2.127	-.691	0	0	0	5.000	5.000	-4.937E-02	.349	3.004
3.000	2.127	-.691	0	0	0	5.000	5.000	5.779E-02	-.409	3.004
3.100	2.127	-.691	0	0	0	5.000	5.000	.165	-1.166	3.004
3.200	2.127	-.691	0	0	0	5.000	5.000	.272	-1.924	3.004
3.300	2.127	-.691	0	0	0	5.000	5.000	.379	-2.681	3.004
3.400	2.127	-.691	0	0	0	5.000	5.000	.486	-3.439	3.004
3.500	2.127	-.691	0	0	0	5.000	5.000	.552	-3.906	3.004
3.600	2.127	-.691	0	0	0	5.000	5.000	.577	-4.083	3.004
3.700	2.127	-.691	0	0	0	5.000	5.000	.590	-4.171	3.004
3.800	2.127	-.691	0	0	0	5.000	5.000	.513	-3.623	3.004
3.900	2.127	-.691	0	0	0	5.000	5.000	.358	-2.528	3.004
4.000	2.127	-.691	0	0	0	5.000	5.000	.253	-1.785	3.004
4.100	2.127	-.691	0	0	0	5.000	5.000	.198	-1.397	3.004
4.200	2.127	-.691	0	0	0	5.000	5.000	.169	-1.193	3.004
4.300	2.127	-.691	0	0	0	5.000	5.000	.166	-1.176	3.004
4.400	2.127	-.691	0	0	0	5.000	5.000	.164	-1.158	3.004
4.500	2.127	-.691	0	0	0	5.000	5.000	.161	-1.140	3.004
4.600	2.127	-.691	0	0	0	5.000	5.000	.152	-1.075	3.004
4.700	2.127	-.691	0	0	0	5.000	5.000	.136	-.962	3.004
4.800	2.127	-.691	0	0	0	5.000	5.000	.120	-.849	3.004
4.900	2.127	-.691	0	0	0	5.000	5.000	.104	-.736	3.004

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TIME	STKLON 22 1478	DH 23 1503	STKLAT 24 1479	DAL 25 1505	DAR 26 1506	DFLAPL 27 1637	DFLAPR 28 1638	PEDAL 29 1480	DR 30 1513	THETAJ 31 1788
5.000	2.127	-.691	0	0	0	5.000	5.000	8.803E-02	-.622	3.004
5.100	2.127	-.691	0	0	0	5.000	5.000	7.203E-02	-.509	3.004
5.200	2.127	-.691	0	0	0	5.000	5.000	5.602E-02	-.396	3.004
5.300	2.127	-.691	0	0	0	5.000	5.000	4.002E-02	-.283	3.004
5.400	2.127	-.691	0	0	0	5.000	5.000	2.401E-02	-.170	3.004
5.500	2.127	-.691	0	0	0	5.000	5.000	8.003E-03	-5.658E-02	3.004
5.600	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
5.700	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
5.800	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
5.900	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.000	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.100	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.200	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.300	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.400	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.500	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.600	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.700	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.800	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
6.900	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.000	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.100	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.200	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.300	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.400	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.500	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.600	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.700	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.800	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
7.900	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004
8.000	2.127	-.691	0	0	0	5.000	5.000	0	-0	3.004

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TIME	NFC 32 1805	NF 33 1804	INAIR 34 1825	FGTOT 35 1769	VE 36 1412	DRAGSCB 37 1315	DRAGTBL 38 1750	DRAGRAM 39 1812	TOTALD 40 1657	PHI 41 1104
C.000	82.905	76.530	132.673	4854.462	.714	0	84.205	2824.669	.323	0
.100	82.905	76.530	132.670	4854.312	.714	0	84.184	2824.482	.323	2.151E-03
.200	82.906	76.530	132.665	4854.001	.714	0	84.136	2824.174	.323	5.819E-03
.300	82.906	76.530	132.660	4853.672	.714	0	84.085	2823.745	.323	9.227E-03
.400	82.907	76.530	132.654	4853.312	.714	0	84.030	2823.331	.323	9.725E-03
.500	82.908	76.530	132.648	4852.913	.714	0	83.968	2822.870	.323	4.863E-03
.600	82.909	76.530	132.641	4852.468	.714	0	83.900	2822.357	.323	-7.645E-03
.700	82.910	76.530	132.633	4851.972	.714	0	83.824	2821.786	.323	-2.989E-02
.800	82.911	76.530	132.624	4851.425	.714	0	83.740	2821.156	.323	-6.367E-02
.900	82.912	76.530	132.615	4850.826	.714	0	83.648	2820.466	.323	-.110
1.000	82.914	76.530	132.604	4850.178	.714	0	83.548	2819.721	.323	-.171
1.100	82.915	76.530	132.593	4849.484	.714	0	83.441	2818.923	.323	-.246
1.200	82.917	76.530	132.582	4848.749	.714	0	83.328	2818.079	.323	-.336
1.300	82.918	76.530	132.569	4847.977	.713	0	83.210	2817.193	.323	-.439
1.400	82.920	76.530	132.557	4847.171	.713	0	83.086	2816.269	.323	-.555
1.500	82.922	76.530	132.543	4846.337	.713	0	82.958	2815.312	.323	-.682
1.600	82.924	76.530	132.530	4845.478	.713	0	82.826	2814.329	.323	-.818
1.700	82.926	76.530	132.516	4844.601	.713	0	82.692	2813.324	.323	-.959
1.800	82.927	76.530	132.502	4843.690	.713	0	82.552	2812.281	.323	-1.090
1.900	82.929	76.530	132.487	4842.752	.713	0	82.409	2811.209	.323	-1.213
2.000	82.931	76.530	132.472	4841.790	.713	0	82.261	2810.109	.323	-1.337
2.100	82.933	76.530	132.456	4840.802	.712	0	82.111	2808.980	.323	-1.484
2.200	82.936	76.530	132.441	4839.798	.712	0	81.957	2807.834	.323	-1.697
2.300	82.938	76.530	132.424	4838.768	.712	0	81.800	2806.659	.323	-2.017
2.400	82.940	76.530	132.408	4837.706	.712	0	81.638	2805.446	.323	-2.495
2.500	82.942	76.530	132.390	4836.593	.712	0	81.469	2804.177	.323	-3.173
2.600	82.945	76.530	132.372	4835.427	.712	0	81.291	2802.846	.323	-4.107
2.700	82.947	76.530	132.352	4834.187	.712	0	81.103	2801.432	.323	-5.323
2.800	82.950	76.530	132.332	4832.868	.711	0	80.903	2799.929	.323	-6.829
2.900	82.953	76.530	132.310	4831.470	.711	0	80.691	2798.338	.322	-8.606
3.000	82.956	76.530	132.287	4830.012	.711	0	80.470	2796.680	.322	-10.616
3.100	82.959	76.530	132.263	4828.498	.711	0	80.241	2794.960	.322	-12.796
3.200	82.962	76.530	132.240	4826.969	.711	0	80.009	2793.227	.322	-15.067
3.300	82.966	76.530	132.216	4825.459	.710	0	79.781	2791.518	.322	-17.335
3.400	82.969	76.530	132.194	4824.004	.710	0	79.561	2789.874	.322	-19.497
3.500	82.971	76.530	132.173	4822.626	.710	0	79.352	2788.320	.322	-21.454
3.600	82.974	76.530	132.153	4821.347	.710	0	79.159	2786.879	.322	-23.106
3.700	82.977	76.530	132.135	4820.152	.710	0	78.979	2785.533	.322	-24.381
3.800	82.979	76.530	132.117	4819.013	.710	0	78.807	2784.249	.322	-25.226
3.900	82.981	76.530	132.100	4817.906	.709	0	78.640	2783.002	.322	-25.608
4.000	82.984	76.530	132.083	4816.791	.709	0	78.473	2781.743	.322	-25.528
4.100	82.986	76.530	132.065	4815.627	.709	0	78.299	2780.430	.322	-25.011
4.200	82.989	76.530	132.046	4814.405	.709	0	78.116	2779.050	.322	-24.090
4.300	82.991	76.530	132.026	4813.120	.709	0	77.924	2777.601	.322	-22.813
4.400	82.994	76.530	132.005	4811.778	.709	0	77.723	2776.090	.322	-21.233
4.500	82.997	76.530	131.984	4810.396	.708	0	77.517	2774.535	.322	-19.415
4.600	83.000	76.530	131.962	4808.995	.708	0	77.308	2772.961	.322	-17.435
4.700	83.003	76.530	131.941	4807.600	.708	0	77.100	2771.396	.321	-15.381
4.800	83.005	76.530	131.920	4806.232	.708	0	76.896	2769.864	.321	-13.349
4.900	83.008	76.530	131.900	4804.907	.708	0	76.698	2768.380	.321	-11.430

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TIME	NFC 32 1805	NF 33 1804	INAIR 34 1825	FGTOT 35 1769	VE 36 1412	DRAGSCB 37 1315	DRAGTBL 38 1750	DRAGRAM 39 1812	TOTBLD 40 1657	PHI 41 1104
5.000	83.011	76.530	131.880	4803.630	.708	0	76.508	2766.952	.321	-9.707
5.100	83.013	76.530	131.862	4802.401	.707	0	76.326	2765.579	.321	-8.249
5.200	83.016	76.530	131.844	4801.214	.707	0	76.149	2764.253	.321	-7.103
5.300	83.018	76.530	131.826	4800.057	.707	0	75.978	2762.961	.321	-6.300
5.400	83.021	76.530	131.808	4798.912	.707	0	75.808	2761.682	.321	-5.848
5.500	83.023	76.530	131.791	4797.762	.707	0	75.638	2760.398	.321	-5.742
5.600	83.025	76.530	131.773	4796.592	.707	0	75.465	2759.091	.321	-5.963
5.700	83.028	76.530	131.755	4795.386	.707	0	75.287	2757.744	.321	-6.483
5.800	83.030	76.530	131.735	4794.139	.706	0	75.103	2756.353	.321	-7.266
5.900	83.033	76.530	131.716	4792.848	.706	0	74.913	2754.913	.321	-8.268
6.000	83.036	76.530	131.695	4791.518	.706	0	74.718	2753.431	.321	-9.440
6.100	83.039	76.530	131.675	4790.155	.706	0	74.517	2751.913	.321	-10.725
6.200	83.041	76.530	131.654	4788.769	.706	0	74.314	2750.372	.321	-12.064
6.300	83.044	76.530	131.632	4787.368	.705	0	74.108	2748.816	.321	-13.397
6.400	83.047	76.530	131.611	4785.960	.705	0	73.902	2747.252	.320	-14.670
6.500	83.050	76.530	131.589	4784.548	.705	0	73.695	2745.686	.320	-15.832
6.600	83.053	76.530	131.568	4783.137	.705	0	73.489	2744.123	.320	-16.843
6.700	83.056	76.530	131.547	4781.728	.705	0	73.283	2742.562	.320	-17.673
6.800	83.059	76.530	131.526	4780.319	.705	0	73.077	2741.003	.320	-18.305
6.900	83.062	76.530	131.504	4778.910	.704	0	72.872	2739.445	.320	-18.733
7.000	83.064	76.530	131.483	4777.499	.704	0	72.666	2737.886	.320	-18.961
7.100	83.067	76.530	131.462	4776.086	.704	0	72.461	2736.324	.320	-19.003
7.200	83.070	76.530	131.440	4774.668	.704	0	72.255	2734.760	.320	-18.882
7.300	83.073	76.530	131.419	4773.248	.704	0	72.048	2733.194	.320	-18.625
7.400	83.076	76.530	131.398	4771.826	.703	0	71.842	2731.627	.320	-18.266
7.500	83.079	76.530	131.376	4770.403	.703	0	71.636	2730.060	.320	-17.839
7.600	83.082	76.530	131.355	4768.980	.703	0	71.430	2728.493	.320	-17.381
7.700	83.085	76.530	131.333	4767.556	.703	0	71.224	2726.928	.320	-16.928
7.800	83.088	76.530	131.312	4766.131	.703	0	71.019	2725.362	.320	-16.512
7.900	83.091	76.530	131.291	4764.704	.703	0	70.813	2723.795	.320	-16.165
8.000	83.093	76.530	131.269	4763.271	.702	0	70.606	2722.222	.320	-15.912

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TIME	THETA 42 1103	PSI 43 1102	PDEG 44 1732	QDEG 45 1733	RDEG 46 1734	NZ 47 2000	XACC 48 1051	YACC 49 1052	ZACC 50 1053	PDDEG 51 1943
0.000	5.500	0	0	0	0	1.128	2.897	0	-36.288	.592
.100	5.515	-4.970E-03	2.960E-02	.156	-5.142E-02	1.127	2.896	-9.171E-03	-36.263	.592
.200	5.560	-1.972E-02	5.793E-02	.448	-.147	1.128	2.899	-3.515E-02	-36.299	.315
.300	5.631	-4.310E-02	6.235E-02	.712	-.233	1.134	2.911	-7.512E-02	-36.482	4.588E-02
.400	5.725	-7.378E-02	4.060E-02	.936	-.306	1.143	2.927	-.126	-36.783	-.218
.500	5.836	-.110	-6.663E-03	1.114	-.363	1.155	2.948	-.185	-37.169	-.473
.600	5.961	-.151	-7.821E-02	1.243	-.404	1.169	2.974	-.248	-37.609	-.716
.700	6.093	-.194	-.172	1.323	-.428	1.183	3.002	-.313	-38.071	-.940
.800	6.228	-.238	-.286	1.355	-.436	1.198	3.031	-.376	-38.529	-1.135
.900	6.363	-.281	-.415	1.344	-.429	1.211	3.060	-.433	-38.957	-1.293
1.000	6.492	-.323	-.555	1.298	-.408	1.222	3.085	-.484	-39.304	-1.408
1.100	6.616	-.361	-.704	1.233	-.377	1.230	3.107	-.525	-39.585	-1.484
1.200	6.731	-.396	-.853	1.152	-.337	1.237	3.126	-.555	-39.814	-1.491
1.300	6.837	-.426	-.995	1.060	-.292	1.243	3.141	-.574	-39.988	-1.432
1.400	6.933	-.451	-1.126	.963	-.244	1.247	3.150	-.582	-40.107	-1.310
1.500	7.019	-.472	-1.239	.863	-.195	1.249	3.157	-.578	-40.173	-1.134
1.600	7.096	-.488	-1.331	.766	-.148	1.249	3.161	-.564	-40.187	-.917
1.700	7.163	-.500	-1.398	.674	-.106	1.248	3.145	-.430	-40.158	-.672
1.800	7.221	-.551	-1.266	.590	-.465	1.246	3.110	-.258	-40.089	1.090
1.900	7.271	-.667	-1.087	.516	-1.119	1.243	3.074	-.197	-39.987	1.800
2.000	7.312	-.877	-.966	.455	-2.068	1.239	3.037	-.297	-39.860	1.257
2.100	7.345	-1.209	-1.031	.409	-3.266	1.234	3.009	-.671	-39.718	-.592
2.200	7.372	-1.650	-1.530	.383	-4.380	1.230	2.994	-1.284	-39.578	-4.778
2.300	7.392	-2.197	-2.473	.379	-5.427	1.227	2.986	-2.077	-39.463	-9.390
2.400	7.408	-2.826	-3.939	.402	-6.234	1.225	2.988	-2.989	-39.403	-14.579
2.500	7.420	-3.513	-5.876	.452	-6.809	1.226	3.016	-4.068	-39.432	-19.378
2.600	7.431	-4.186	-8.424	.522	-6.702	1.230	3.072	-5.170	-39.589	-25.245
2.700	7.441	-4.796	-11.339	.596	-6.044	1.240	3.135	-6.084	-39.895	-29.195
2.800	7.454	-5.288	-14.416	.643	-4.861	1.254	3.196	-6.662	-40.338	-30.866
2.900	7.471	-5.639	-17.323	.634	-3.429	1.270	3.255	-6.874	-40.866	-29.281
3.000	7.496	-5.825	-19.862	.545	-1.789	1.287	3.292	-6.743	-41.395	-25.493
3.100	7.531	-5.836	-21.807	.364	-4.022E-02	1.300	3.303	-6.270	-41.821	-19.543
3.200	7.583	-5.668	-22.960	9.571E-02	1.744	1.306	3.300	-5.470	-42.030	-11.620
3.300	7.658	-5.323	-23.170	-.237	3.493	1.303	3.275	-4.378	-41.937	-2.163
3.400	7.764	-4.812	-22.351	-.595	5.145	1.290	3.226	-3.039	-41.492	8.142
3.500	7.910	-4.152	-20.506	-.930	6.643	1.265	3.165	-1.453	-40.703	18.448
3.600	8.094	-3.385	-17.636	-1.188	7.748	1.232	3.107	.284	-39.643	28.619
3.700	8.315	-2.550	-13.967	-1.323	8.467	1.195	3.025	2.063	-38.437	36.759
3.800	8.563	-1.698	-9.726	-1.293	8.715	1.152	2.962	3.898	-37.078	42.473
3.900	8.815	-.910	-5.040	-1.080	8.163	1.117	2.937	5.631	-35.941	46.761
4.000	9.049	-.247	-.234	-.730	6.945	1.094	2.921	6.996	-35.197	48.161
4.100	9.250	.256	4.394	-.312	5.361	1.085	2.922	7.947	-34.922	46.401
4.200	9.403	.571	8.716	9.371E-02	3.472	1.091	2.946	8.463	-35.110	43.388
4.300	9.503	.697	12.590	.417	1.537	1.109	2.987	8.552	-35.679	38.848
4.400	9.546	.640	15.922	.609	-.363	1.134	3.035	8.262	-36.489	33.367
4.500	9.533	.415	18.587	.648	-2.130	1.162	3.091	7.629	-37.373	26.703
4.600	9.467	4.393E-02	20.451	.540	-3.691	1.186	3.145	6.711	-38.152	18.698
4.700	9.357	-.453	21.388	.327	-5.023	1.201	3.183	5.566	-38.633	9.411
4.800	9.213	-1.051	21.332	5.979E-02	-6.081	1.207	3.204	4.253	-38.845	-.551
4.900	9.046	-1.722	20.299	-.214	-6.842	1.205	3.203	2.843	-38.767	-10.331

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TIME	THETA 42 1103	PSI 43 1102	PDEG 44 1732	QDEG 45 1733	RDEG 46 1734	NZ 47 2000	XACC 48 1051	YACC 49 1052	ZACC 50 1053	PDDEG 51 1943
5.000	8.869	-2.438	18.384	-.447	-7.291	1.194	3.185	1.406	-38.429	-19.185
5.100	8.695	-3.170	15.741	-.601	-7.428	1.178	3.155	9.183E-03	-37.895	-26.490
5.200	8.535	-3.888	12.560	-.642	-7.265	1.156	3.116	-1.290	-37.190	-31.896
5.300	8.401	-4.566	9.051	-.560	-6.824	1.135	3.082	-2.444	-36.517	-35.181
5.400	8.300	-5.178	5.415	-.371	-6.145	1.119	3.059	-3.413	-35.987	-36.444
5.500	8.237	-5.707	1.822	-.107	-5.274	1.109	3.050	-4.170	-35.676	-36.004
5.600	8.213	-6.137	-1.595	.190	-4.269	1.107	3.054	-4.708	-35.619	-34.224
5.700	8.226	-6.458	-4.748	.478	-3.151	1.113	3.069	-5.014	-35.809	-31.554
5.800	8.274	-6.667	-7.541	.721	-1.993	1.125	3.096	-5.078	-36.202	-27.972
5.900	8.351	-6.764	-9.896	.893	-.849	1.141	3.132	-4.911	-36.727	-23.585
6.000	8.452	-6.757	-11.741	.979	.225	1.159	3.173	-4.533	-37.300	-18.478
6.100	8.569	-6.657	-13.016	.979	1.184	1.175	3.212	-3.974	-37.812	-12.770
6.200	8.698	-6.479	-13.678	.921	1.990	1.187	3.243	-3.274	-38.192	-6.645
6.300	8.836	-6.240	-13.724	.819	2.617	1.195	3.267	-2.472	-38.450	-.467
6.400	8.977	-5.959	-13.183	.696	3.046	1.199	3.279	-1.613	-38.572	5.424
6.500	9.118	-5.655	-12.116	.570	3.271	1.199	3.283	-.744	-38.561	10.696
6.600	9.255	-5.349	-10.613	.460	3.293	1.195	3.280	9.647E-02	-38.439	15.067
6.700	9.383	-5.059	-8.783	.376	3.120	1.189	3.271	.869	-38.240	18.340
6.800	9.500	-4.803	-6.746	.326	2.773	1.181	3.258	1.543	-38.002	20.417
6.900	9.602	-4.595	-4.622	.308	2.275	1.174	3.246	2.093	-37.760	21.292
7.000	9.685	-4.447	-2.523	.317	1.658	1.167	3.236	2.502	-37.542	21.039
7.100	9.749	-4.367	-.549	.345	.957	1.161	3.229	2.761	-37.365	19.782
7.200	9.792	-4.360	1.214	.382	.209	1.157	3.225	2.868	-37.229	17.670
7.300	9.815	-4.426	2.696	.424	-.549	1.154	3.224	2.826	-37.138	14.847
7.400	9.818	-4.565	3.847	.461	-1.283	1.153	3.225	2.649	-37.089	11.534
7.500	9.804	-4.769	4.635	.490	-1.959	1.152	3.228	2.351	-37.066	7.900
7.600	9.776	-5.031	5.046	.510	-2.552	1.152	3.232	1.955	-37.054	4.113
7.700	9.737	-5.341	5.080	.524	-3.040	1.151	3.235	1.485	-37.042	.344
7.800	9.690	-5.688	4.757	.536	-3.408	1.151	3.239	.968	-37.024	-3.238
7.900	9.641	-6.058	4.111	.549	-3.647	1.150	3.242	.429	-37.000	-6.478
8.000	9.592	-6.440	3.188	.569	-3.756	1.149	3.245	-.104	-36.977	-9.245

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TIME	QDDEG 52 1944	RDDEG 53 1945	XTOT 54 1973	YTOT 55 1974	ZTOT 56 1975	LTOT 57 1137	MTOT 58 1138	NTOT 59 1139	XAERO 60 1326	YAERO 61 1327
0.000	3.119	-1.028	1731.580	0	-21688.813	124.263	1747.104	-716.391	-201.310	0
.100	3.119	-1.028	1730.946	-5.482	-21673.658	99.051	1701.000	-691.589	-201.978	-5.260
.200	2.939	-.961	1732.989	-21.009	-21695.468	53.391	1571.103	-628.347	-200.055	-20.104
.300	2.643	-.861	1739.815	-44.900	-21804.913	6.431	1374.342	-541.383	-193.481	-42.879
.400	2.247	-.729	1749.429	-75.398	-21984.653	-40.251	1132.792	-436.940	-184.233	-71.911
.500	1.785	-.576	1762.165	-110.595	-22215.928	-85.724	862.574	-321.513	-171.955	-105.389
.600	1.291	-.411	1777.342	-148.491	-22478.338	-128.783	582.501	-201.532	-157.306	-141.410
.700	.793	-.242	1794.161	-187.088	-22754.756	-167.892	308.463	-83.028	-141.059	-178.076
.800	.320	-7.864E-02	1811.733	-224.484	-23028.166	-201.291	53.880	28.609	-125.081	-213.582
.900	-.109	7.313E-02	1829.126	-258.956	-23284.298	-227.193	-170.633	128.811	-107.281	-246.295
1.000	-.461	.206	1844.124	-289.054	-23491.478	-246.514	-318.787	212.490	-92.855	-274.840
1.100	-.661	.314	1857.088	-313.623	-23659.421	-255.661	-418.208	277.997	-80.433	-298.123
1.200	-.813	.398	1868.335	-331.840	-23796.228	-252.955	-490.439	324.475	-69.686	-315.367
1.300	-.918	.455	1877.490	-343.247	-23900.362	-238.825	-536.412	351.218	-60.984	-326.139
1.400	-.978	.485	1882.937	-347.742	-23971.614	-214.450	-557.659	358.389	-55.939	-330.346
1.500	-.996	.488	1886.795	-345.556	-24010.614	-181.590	-556.008	346.973	-52.432	-328.211
1.600	-.975	.467	1889.097	-337.221	-24019.308	-142.438	-534.135	318.682	-50.431	-320.242
1.700	-.921	.423	1879.774	-256.916	-24001.617	112.463	-496.655	-998.426	-60.009	-240.915
1.800	-.844	-3.199	1859.051	-154.295	-23960.504	393.583	-450.005	-3396.371	-80.967	-137.784
1.900	-.739	-6.544	1837.379	-118.034	-23899.421	489.600	-390.345	-5555.714	-102.870	-98.052
2.000	-.610	-9.510	1815.098	-177.646	-23823.617	364.632	-319.940	-7390.071	-125.418	-149.766
2.100	-.457	-12.001	1798.569	-401.113	-23738.990	-136.684	-240.394	-7940.439	-142.326	-359.355
2.200	-.266	-11.433	1789.448	-767.695	-23655.353	-872.694	-155.715	-7318.151	-152.021	-706.796
2.300	-3.641E-02	-10.490	1784.751	-1241.277	-23586.418	-1735.923	-80.198	-6068.982	-157.608	-1156.590
2.400	.227	-8.194	1785.781	-1786.724	-23550.576	-2619.006	-29.214	-4324.619	-157.857	-1675.200
2.500	.494	-5.763	1802.384	-2431.231	-23568.083	-3660.439	-20.751	-1121.325	-142.971	-2290.861
2.600	.707	.642	1836.078	-3089.791	-23661.975	-4617.474	-76.417	3207.595	-111.263	-2922.410
2.700	.738	6.592	1873.665	-3636.216	-23844.684	-5229.104	-211.329	7102.645	-75.709	-3446.926
2.800	.486	11.853	1910.066	-3981.802	-24109.506	-5323.910	-416.654	9787.740	-41.062	-3778.874
2.900	-7.683E-02	14.545	1945.178	-4108.413	-24424.801	-4949.864	-658.171	11275.925	-7.194	-3901.150
3.000	-.878	16.433	1967.318	-4030.257	-24741.464	-4186.628	-889.102	12162.478	14.402	-3828.789
3.100	-1.804	17.526	1974.104	-3747.218	-24995.571	-3059.749	-1054.978	12483.592	21.391	-3561.830
3.200	-2.682	17.869	1972.152	-3269.393	-25120.997	-1623.661	-1104.105	12286.191	20.328	-3109.988
3.300	-3.333	17.523	1957.247	-2616.658	-25064.863	26.549	-1000.556	11621.193	6.795	-2497.213
3.400	-3.597	16.550	1927.956	-1816.389	-24798.982	1761.460	-731.441	10537.566	-20.952	-1734.509
3.500	-3.370	15.006	1891.569	-868.710	-24327.850	3539.399	-311.375	8472.246	-55.998	-835.760
3.600	-2.601	11.251	1853.902	169.641	-23693.926	5141.908	210.665	5578.801	-92.913	149.973
3.700	-1.371	7.210	1808.160	1232.965	-22973.498	6416.602	763.006	2386.296	-138.770	1159.425
3.800	.300	2.541	1770.360	2329.977	-22161.005	7415.489	1463.777	-2064.336	-177.673	2203.543
3.900	2.124	-5.179	1755.384	3365.396	-21481.665	8056.896	1975.814	-7223.877	-194.552	3191.124
4.000	3.524	-12.200	1746.026	4181.690	-21036.753	8145.993	2212.450	-10975.563	-206.226	3968.456
4.100	4.207	-16.115	1746.520	4749.543	-20872.116	7852.843	2162.898	-13237.185	-208.033	4507.744
4.200	4.093	-18.937	1760.906	5057.985	-20984.780	7271.452	1858.713	-14267.295	-195.497	4799.422
4.300	3.267	-19.511	1785.235	5111.588	-21324.571	6458.377	1382.337	-14141.256	-172.329	4848.096
4.400	1.945	-19.053	1813.951	4938.224	-21809.141	5439.014	830.357	-13322.581	-143.970	4681.276
4.500	.398	-17.704	1847.330	4559.458	-22337.389	4186.576	307.029	-11934.474	-110.186	4319.602
4.600	-1.087	-15.638	1879.889	4010.791	-22803.060	2715.199	-85.753	-10207.090	-76.612	3797.162
4.700	-2.137	-13.316	1902.703	3326.627	-23090.108	1041.298	-215.566	-8246.303	-52.393	3146.706
4.800	-2.690	-10.598	1914.805	2541.895	-23217.032	-665.396	-196.446	-6070.223	-38.764	2401.182
4.900	-2.757	-7.619	1914.582	1699.091	-23170.598	-2283.622	-38.623	-3772.946	-37.587	1606.951

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TIME	QDDEG 52 1944	RDDEG 53 1945	XTOT 54 1973	YTOT 55 1974	ZTOT 56 1975	LTOT 57 1137	MTOT 58 1138	NTOT 59 1139	XAERO 60 1326	YAERO 61 1327
5.000	-2.348	-4.502	1903.562	840.473	-22968.247	-3697.849	225.392	-1444.609	-47.539	786.121
5.100	-1.558	-1.370	1885.438	5.489	-22649.046	-4822.132	554.889	822.513	-65.058	-5.895
5.200	-.425	1.645	1862.193	-771.161	-22227.889	-5616.391	987.779	2927.572	-88.212	-742.205
5.300	.822	4.412	1842.111	-1460.568	-21825.861	-6056.115	1354.535	4776.494	-108.682	-1395.420
5.400	1.900	6.808	1828.561	-2039.816	-21509.092	-6177.982	1597.144	6284.002	-122.998	-1943.829
5.500	2.649	8.724	1823.110	-2492.310	-21323.219	-6036.429	1683.428	7385.247	-129.443	-2371.720
5.600	2.986	10.079	1825.166	-2814.039	-21289.093	-5704.371	1608.451	8160.685	-128.458	-2675.617
5.700	2.902	11.161	1834.328	-2996.825	-21402.525	-5207.450	1391.831	8583.780	-120.296	-2847.774
5.800	2.448	11.612	1850.534	-3035.121	-21637.197	-4553.632	1072.196	8554.576	-104.911	-2882.719
5.900	1.726	11.460	1872.114	-2935.042	-21951.001	-3758.189	699.619	8111.391	-83.918	-2786.332
6.000	.866	10.766	1896.599	-2709.120	-22293.689	-2839.382	326.880	7312.229	-59.774	-2570.588
6.100	6.175E-03	9.609	1919.805	-2375.480	-22599.752	-1823.848	34.439	6223.623	-36.701	-2252.765
6.200	-.600	8.079	1938.411	-1956.531	-22826.528	-761.441	-137.374	4917.759	-18.091	-1854.193
6.300	-1.022	6.278	1952.386	-1477.264	-22981.091	286.171	-241.535	3472.738	-4.058	-1398.611
6.400	-1.245	4.304	1959.860	-964.364	-23053.867	1261.091	-278.150	1959.363	3.449	-911.365
6.500	-1.265	2.252	1962.001	-444.380	-23047.309	2110.211	-255.835	445.415	5.937	-417.656
6.600	-1.112	.213	1960.532	57.659	-22974.492	2791.735	-190.096	-1004.640	3.895	58.775
6.700	-.838	-1.726	1954.788	519.406	-22855.666	3279.307	-100.037	-2330.673	-2.144	496.739
6.800	-.507	-3.483	1947.531	922.042	-22713.312	3562.891	-4.021	-3479.002	-9.798	878.406
6.900	-.181	-4.988	1940.322	1250.856	-22568.601	3646.826	82.806	-4405.272	-17.465	1189.846
7.000	9.238E-02	-6.182	1934.286	1495.551	-22438.193	3546.241	150.546	-5077.304	-23.970	1421.327
7.100	.281	-7.025	1930.040	1650.358	-22332.487	3283.251	195.176	-5477.151	-28.648	1567.413
7.200	.379	-7.497	1927.436	1713.983	-22250.992	2880.557	227.455	-5602.050	-31.611	1626.921
7.300	.415	-7.599	1926.642	1689.318	-22196.999	2370.589	241.775	-5462.856	-32.678	1602.637
7.400	.374	-7.348	1927.459	1583.066	-22167.771	1784.932	238.489	-5083.439	-32.049	1500.964
7.500	.291	-6.779	1929.275	1405.270	-22154.112	1152.577	227.797	-4497.675	-30.357	1331.468
7.600	.203	-5.940	1931.506	1168.624	-22146.944	503.001	218.298	-3746.559	-28.220	1106.232
7.700	.139	-4.889	1933.728	887.739	-22139.472	-134.212	215.087	-2875.518	-26.104	839.145
7.800	.115	-3.687	1935.751	578.340	-22128.423	-730.641	219.049	-1932.071	-24.232	545.146
7.900	.136	-2.399	1937.645	256.475	-22114.301	-1260.802	227.180	-963.796	-22.570	239.474
8.000	.192	-1.088	1939.681	-62.247	-22100.740	-1703.861	233.739	-16.486	-20.860	-63.059

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TIME	ZAERO 62 1328	LAERO 63 1329	MAERO 64 1330	NAERO 65 1331	XFG 66 1751	YFG 67 1752	ZFG 68 1753	LFG 69 1754	MFG 70 1755	NFG 71 1756
C.000	-21022.606	124.263	-2509.295	-716.391	1932.889	0	-666.207	0	4256.398	0
.100	-21007.793	98.937	-2551.952	-689.312	1932.923	-.222	-665.865	.114	4252.952	-2.277
.200	-21029.510	52.902	-2683.073	-619.019	1933.044	-.905	-665.958	.489	4254.176	-9.328
.300	-21137.564	5.314	-2893.647	-520.494	1933.296	-2.021	-667.348	1.117	4268.989	-20.889
.400	-21314.863	-42.203	-3162.044	-400.856	1933.662	-3.486	-669.789	1.952	4294.836	-36.084
.500	-21542.519	-88.663	-3466.306	-267.571	1934.120	-5.206	-673.009	2.940	4329.880	-53.942
.600	-21801.607	-132.808	-3785.735	-128.101	1934.647	-7.081	-676.731	4.075	4368.236	-73.431
.700	-22074.068	-173.042	-4101.662	10.478	1935.220	-9.012	-680.688	5.150	4410.125	-93.506
.800	-22343.528	-207.549	-4398.124	141.770	1935.814	-10.902	-684.638	6.259	4452.004	-113.161
.900	-22595.929	-234.493	-4662.298	260.287	1936.407	-12.661	-688.369	7.300	4491.665	-131.476
1.000	-22799.758	-254.743	-4846.198	360.142	1936.979	-14.214	-691.720	8.229	4527.411	-147.652
1.100	-22964.790	-264.671	-4976.805	439.048	1937.521	-15.499	-694.631	9.010	4558.597	-161.051
1.200	-23099.199	-262.569	-5074.910	495.685	1938.021	-16.473	-697.029	9.614	4584.472	-171.210
1.300	-23201.477	-248.850	-5141.119	529.069	1938.474	-17.108	-698.885	10.026	4604.707	-177.851
1.400	-23271.426	-224.686	-5176.855	539.271	1938.877	-17.396	-700.188	10.237	4619.196	-180.882
1.500	-23309.665	-191.840	-5184.054	527.362	1939.227	-17.345	-700.949	10.250	4628.046	-180.389
1.600	-23318.110	-152.516	-5165.696	495.302	1939.527	-16.979	-701.199	10.078	4631.562	-178.620
1.700	-23300.654	102.088	-5126.556	-821.499	1939.783	-16.001	-700.964	10.375	4629.901	-176.928
1.800	-23260.212	381.341	-5073.585	-3193.696	1940.018	-16.511	-700.291	12.242	4623.580	-202.675
1.900	-23200.149	473.610	-5004.009	-5293.758	1940.249	-19.982	-699.272	15.991	4613.664	-261.956
2.000	-23125.628	342.055	-4920.982	-7018.906	1940.516	-27.879	-697.989	22.577	4601.043	-371.165
2.100	-23042.435	-168.505	-4827.423	-7407.938	1940.895	-41.758	-696.556	31.820	4587.029	-532.501
2.200	-22960.222	-916.166	-4729.012	-6578.662	1941.470	-60.899	-695.130	43.472	4573.296	-739.489
2.300	-22892.500	-1793.504	-4642.209	-5078.279	1942.359	-84.687	-693.918	57.380	4562.011	-990.702
2.400	-22857.353	-2692.280	-4585.606	-3054.991	1943.638	-111.524	-693.223	73.274	4556.392	-1269.628
2.500	-22874.665	-3749.471	-4581.203	432.519	1945.356	-140.370	-693.417	89.031	4560.452	-1553.845
2.600	-22967.059	-4720.291	-4654.847	5012.252	1947.342	-167.381	-694.917	102.817	4578.430	-1804.657
2.700	-23146.755	-5343.093	-4823.565	9106.996	1949.374	-189.290	-697.929	113.989	4612.237	-2004.351
2.800	-23407.128	-5445.330	-5077.519	11917.022	1951.127	-202.929	-702.378	121.419	4660.865	-2129.282
2.900	-23717.024	-5073.776	-5377.293	13438.263	1952.371	-207.263	-707.777	123.912	4719.122	-2162.338
3.000	-24028.169	-4307.168	-5667.248	14252.437	1952.916	-201.468	-713.296	120.541	4778.145	-2089.960
3.100	-24277.705	-3170.897	-5881.780	14394.234	1952.712	-185.389	-717.866	111.148	4826.802	-1910.641
3.200	-24400.612	-1719.539	-5957.851	13914.505	1951.824	-159.405	-720.385	95.878	4853.746	-1628.314
3.300	-24344.964	-48.558	-5849.677	12872.589	1950.452	-124.445	-719.899	75.107	4849.121	-1251.396
3.400	-24083.132	1712.078	-5538.680	11329.215	1948.907	-81.880	-715.849	49.382	4807.239	-791.649
3.500	-23519.607	3519.181	-5039.785	8744.480	1947.567	-32.950	-708.243	20.217	4728.410	-272.234
3.600	-22996.202	5152.794	-4408.852	5299.561	1946.815	19.667	-697.724	-10.885	4619.517	279.240
3.700	-22287.986	6459.436	-3730.389	1544.231	1946.910	73.540	-685.512	-42.835	4493.395	842.065
3.800	-21487.698	7488.790	-2904.155	-3444.877	1948.033	126.433	-673.307	-73.301	4367.937	1380.541
3.900	-20818.685	8156.969	-2286.714	-9078.005	1949.936	174.272	-662.980	-100.073	4262.528	1854.128
4.000	-20380.790	8268.857	-1979.286	-13223.746	1952.252	213.233	-655.964	-122.865	4191.736	2248.182
4.100	-20219.083	7993.036	-2000.550	-15777.460	1954.554	241.799	-653.033	-140.194	4163.448	2540.275
4.200	-20330.529	7422.440	-2319.441	-16980.037	1956.402	258.563	-654.251	-150.996	4178.155	2712.741
4.300	-20665.620	6613.566	-2846.444	-16906.377	1957.564	263.493	-658.951	-155.189	4228.781	2765.121
4.400	-21143.170	5591.710	-3472.849	-16020.491	1957.921	256.948	-665.970	-152.696	4303.206	2697.910
4.500	-21663.547	4330.568	-4079.123	-14455.162	1957.516	239.855	-673.842	-143.992	4386.152	2520.688
4.600	-22122.003	2844.962	-4547.743	-12454.401	1956.500	213.629	-681.057	-129.763	4461.990	2247.311
4.700	-22403.713	1152.195	-4733.635	-10141.255	1955.097	179.921	-686.395	-110.897	4518.069	1894.952
4.800	-22527.994	-576.842	-4742.436	-7555.283	1953.569	140.713	-689.038	-88.554	4545.990	1485.060
4.900	-22481.912	-2219.673	-4581.344	-4812.799	1952.169	98.139	-688.685	-63.949	4542.721	1039.853

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TIME	ZAERO 62 1328	LAERO 63 1329	MAERO 64 1330	NAERO 65 1331	XFG 66 1751	YFG 67 1752	ZFG 68 1753	LFG 69 1754	MFG 70 1755	NFG 71 1756
5.000	-22282.675	-3659.517	-4285.421	-2026.363	1951.101	54.352	-685.572	-38.332	4510.813	581.754
5.100	-21968.656	-4809.222	-3902.652	690.563	1950.496	11.384	-680.390	-12.910	4457.541	131.949
5.200	-21553.703	-5627.616	-3406.070	3218.251	1950.404	-28.956	-674.187	11.225	4393.849	-290.679
5.300	-21157.738	-6089.250	-2977.291	5446.761	1950.793	-65.148	-668.123	33.135	4331.826	-670.267
5.400	-20845.881	-6230.047	-2684.844	7278.226	1951.558	-95.987	-663.211	52.066	4281.987	-994.273
5.500	-20663.046	-6103.884	-2568.365	8638.542	1952.554	-120.590	-660.172	67.454	4251.793	-1253.295
5.600	-20629.732	-5783.244	-2636.413	9601.577	1953.624	-138.422	-659.361	78.873	4244.864	-1440.893
5.700	-20741.763	-5293.493	-2869.147	10136.257	1954.624	-149.051	-660.762	86.043	4260.979	-1552.477
5.800	-20973.172	-4642.596	-3224.263	10142.767	1955.446	-152.401	-664.025	88.964	4296.459	-1588.191
5.900	-21282.450	-3845.930	-3645.413	9661.846	1956.032	-148.709	-668.551	87.741	4345.032	-1550.455
6.000	-21620.085	-2922.043	-4072.139	8757.271	1956.374	-138.532	-673.604	82.661	4399.020	-1445.041
6.100	-21921.317	-1898.028	-4416.181	7504.329	1956.506	-122.714	-678.435	74.181	4450.620	-1280.706
6.200	-22144.042	-824.337	-4631.424	5986.475	1956.502	-102.338	-682.486	62.896	4494.050	-1068.716
6.300	-22295.760	236.658	-4766.429	4294.814	1956.444	-78.653	-685.330	49.513	4524.894	-822.076
6.400	-22367.092	1226.292	-4819.308	2514.107	1956.411	-52.998	-686.775	34.799	4541.158	-554.744
6.500	-22360.470	2090.670	-4798.914	726.209	1956.464	-26.724	-686.839	19.541	4543.079	-280.794
6.600	-22288.760	2787.235	-4722.948	-991.002	1956.636	-1.116	-685.733	4.500	4532.852	-13.638
6.700	-22171.874	3288.936	-4614.019	-2565.286	1956.932	22.667	-683.792	-9.629	4513.983	234.614
6.800	-22031.904	3585.134	-4494.543	-3932.648	1957.330	43.637	-681.407	-22.242	4490.522	453.646
6.900	-21889.651	3679.679	-4383.522	-5040.533	1957.788	61.010	-678.949	-32.853	4466.327	635.261
7.000	-21761.476	3587.343	-4293.940	-5850.870	1958.256	74.224	-676.717	-41.102	4444.486	773.567
7.100	-21657.585	3330.013	-4231.799	-6342.189	1958.688	82.945	-674.902	-46.761	4426.975	865.038
7.200	-21577.410	2930.296	-4187.131	-6510.548	1959.047	87.062	-673.582	-49.739	4414.586	908.498
7.300	-21524.251	2420.655	-4165.445	-6367.874	1959.320	86.681	-672.748	-50.067	4407.220	905.017
7.400	-21495.473	1832.830	-4165.327	-5941.153	1959.507	82.103	-672.298	-47.898	4403.816	857.714
7.500	-21482.017	1196.066	-4175.156	-5269.180	1959.632	73.801	-672.094	-43.489	4402.953	771.505
7.600	-21474.946	540.182	-4184.897	-4399.347	1959.727	62.392	-671.998	-37.182	4403.195	652.788
7.700	-21467.571	-104.827	-4188.348	-3384.577	1959.831	48.594	-671.901	-29.384	4403.435	509.059
7.800	-21456.677	-710.093	-4184.058	-2280.580	1959.984	33.193	-671.747	-20.548	4403.107	348.509
7.900	-21442.765	-1249.657	-4175.059	-1143.390	1960.215	17.000	-671.536	-11.145	4402.239	179.593
8.000	-21429.420	-1702.219	-4167.630	-27.112	1960.541	.812	-671.320	-1.642	4401.369	10.627

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TIME	XRCS 72 1651	YRCS 73 1652	ZRCS 74 1653	LRCS 75 1654	MRCS 76 1655	NRCS 77 1656
C.000	-.951	0	-7.095	0	122.905	0
.100	-.951	0	-7.095	0	122.905	0
.200	-.951	0	-7.094	0	122.899	0
.300	-.950	0	-7.094	0	122.892	0
.400	-.950	0	-7.093	0	122.885	0
.500	-.950	0	-7.093	0	122.876	0
.600	-.950	0	-7.092	0	122.867	0
.700	-.950	0	-7.092	0	122.857	0
.800	-.950	0	-7.091	0	122.846	0
.900	-.950	0	-7.090	0	122.834	0
1.000	-.950	0	-7.090	0	122.820	0
1.100	-.950	0	-7.089	0	122.806	0
1.200	-.950	0	-7.088	0	122.790	0
1.300	-.950	0	-7.087	0	122.774	0
1.400	-.949	0	-7.086	0	122.757	0
1.500	-.949	0	-7.085	0	122.739	0
1.600	-.949	0	-7.084	0	122.721	0
1.700	-.947	.335	-7.065	.636	122.399	-6.968
1.800	-.942	.996	-7.029	1.892	121.773	-20.737
1.900	-.937	1.750	-6.993	3.325	121.147	-36.435
2.000	-.932	2.632	-6.957	5.002	120.520	-54.817
2.100	-.929	3.195	-6.933	6.072	120.108	-66.539
2.200	-.927	3.464	-6.922	6.582	119.908	-72.131
2.300	-.927	3.598	-6.915	6.837	119.798	-74.916
2.400	-.926	3.597	-6.914	6.835	119.776	-74.902
2.500	-.929	3.091	-6.932	5.873	120.092	-64.359
2.600	-.934	2.112	-6.970	4.014	120.745	-43.983
2.700	-.939	1.186	-7.008	2.255	121.396	-24.707
2.800	-.943	.613	-7.036	1.165	121.898	-12.762
2.900	-.946	.194	-7.057	.369	122.251	-4.044
3.000	-.945	-.227	-7.053	-.432	122.190	4.731
3.100	-.942	-.645	-7.029	-1.226	121.777	13.433
3.200	-.939	-1.059	-7.006	-2.012	121.363	22.043
3.300	-.935	-1.505	-6.982	-2.859	120.950	31.333
3.400	-.932	-2.063	-6.958	-3.921	120.537	42.964
3.500	-.930	-2.404	-6.943	-4.569	120.272	50.071
3.600	-.929	-2.533	-6.936	-4.813	120.155	52.741
3.700	-.929	-2.596	-6.932	-4.934	120.085	54.068
3.800	-.931	-2.197	-6.946	-4.174	120.336	45.743
3.900	-.935	-1.389	-6.977	-2.639	120.863	28.922
4.000	-.938	-.982	-6.997	-1.865	121.213	20.442
4.100	-.939	-.770	-7.007	-1.463	121.385	16.027
4.200	-.939	-.658	-7.011	-1.251	121.462	13.709
4.300	-.939	-.649	-7.010	-1.232	121.444	13.506
4.400	-.939	-.639	-7.009	-1.214	121.425	13.302
4.500	-.939	-.629	-7.008	-1.195	121.405	13.098
4.600	-.939	-.593	-7.008	-1.127	121.409	12.349
4.700	-.939	-.531	-7.010	-1.009	121.436	11.055
4.800	-.939	-.469	-7.011	-.891	121.464	9.759
4.900	-.940	-.406	-7.013	-.772	121.492	8.462

ORIGINAL PAGE IS
OF POOR QUALITY

RUN NUMBER 1 82/11/15. 13.38.54. PAGE 8 - 2

TIME	XRCS 72 1651	YRCS 73 1652	ZRCS 74 1653	LRCS 75 1654	MRCS 76 1655	NRCS 77 1656
5.000	-.940	-.344	-7.015	-.654	121.521	7.164
5.100	-.940	-.282	-7.016	-.535	121.552	5.865
5.200	-.940	-.219	-7.018	-.416	121.583	4.564
5.300	-.941	-.157	-7.020	-.298	121.615	3.262
5.400	-.941	-9.403E-02	-7.022	-.179	121.648	1.958
5.500	-.941	-3.136E-02	-7.024	-5.959E-02	121.680	.653
5.600	-.941	0	-7.024	0	121.684	0
5.700	-.941	0	-7.023	0	121.659	0
5.800	-.941	0	-7.021	0	121.633	0
5.900	-.941	0	-7.020	0	121.607	0
6.000	-.940	0	-7.018	0	121.579	0
6.100	-.940	0	-7.016	0	121.551	0
6.200	-.940	0	-7.015	0	121.522	0
6.300	-.940	0	-7.013	0	121.493	0
6.400	-.939	0	-7.011	0	121.463	0
6.500	-.939	0	-7.010	0	121.434	0
6.600	-.939	0	-7.008	0	121.404	0
6.700	-.939	0	-7.006	0	121.375	0
6.800	-.939	0	-7.005	0	121.345	0
6.900	-.938	0	-7.003	0	121.316	0
7.000	-.938	0	-7.001	0	121.286	0
7.100	-.938	0	-6.999	0	121.257	0
7.200	-.938	0	-6.998	0	121.228	0
7.300	-.937	0	-6.996	0	121.198	0
7.400	-.937	0	-6.994	0	121.168	0
7.500	-.937	0	-6.993	0	121.139	0
7.600	-.937	0	-6.991	0	121.109	0
7.700	-.936	0	-6.989	0	121.080	0
7.800	-.936	0	-6.988	0	121.050	0
7.900	-.936	0	-6.986	0	121.020	0
8.000	-.936	0	-6.984	0	120.991	0

END OF RUN DATA TIME = 8.000 MISS = 0 TERMINATION -

```
    1   RUN(S) PRINTED

REQUIRED FIELD LENGTH FOR PRECEDING RUN(S)-
COLUMN PRINT
   NORMAL OPTION     043436
   LOW CORE OPTION   034436
BLOCK PRINT          033206

FOR THE COLUMN PRINT, THE NORMAL OPTION IS RECOMMENDED
BECAUSE IT RUNS FASTER FOR APPROXIMATELY THE SAME MRU
CHARGE. THE LOW CORE OPTION CAN BE SELECTED, HOWEVER,
WHEN THE AVAILABLE CORE IS LIMITED.
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ETMHQ6H. 13.39.05. 82/11/15.MCAUTO - CYBER 760-11 76011.          NOS 1 - L552.
13.38.43.YAV8,P10,T77770,CM?60000.
13.38.43.AQCR,        0.068 KCDS. FROM 15
13.38.43.ACCOUNT,M0996F,.
13.38.43.CHARGE,195908.
13.38.43.BANNERS(OP=DTSF)*YAV8B*SIMULATION*RUN**
13.38.43.RFL,0.
13.38.43.GET,YAV8B.
13.38.44.GET,I5OMS.
13.38.44.GET,YAERO,YENGN,YAVAC.
13.38.46.GET,EOM,ATMOS.
13.38.47.GET,FMMPLY,CARDS,TBLKP.
13.38.47.GET,RTPDATA,RTP.
13.38.48.GET,MSGABT.
13.38.48.COPYBR,YAV8B,YLDFL.
13.38.48. COPY COMPLETE.
13.38.48.COPYBR,I5OMS,YLDFL.
13.38.48. COPY COMPLETE.
13.38.48.COPYBR,YAERO,YLDFL,2.
13.38.49. COPY COMPLETE.
13.38.49.COPYBR,YENGN,YLDFL,2.
13.38.49. COPY COMPLETE.
13.38.49.COPYBR,YAVAC,YLDFL,5.
13.38.50. COPY COMPLETE.
13.38.50.COPYBR,EOM,YLDFL,4.
13.38.50. COPY COMPLETE.
13.38.50.COPYBR,ATMOS,YLDFL,2.
13.38.50. COPY COMPLETE.
13.38.50.COPYBR,CARDS,YLDFL.
13.38.50. COPY COMPLETE.
13.38.50.COPYBR,TBLKP,YLDFL,4.
13.38.51. COPY COMPLETE.
13.38.51.COPYBR,FMMPLY,YLDFL,2.
13.38.51. COPY COMPLETE.
13.38.51.COPYBR,RTPDATA,YLDFL.
13.38.51. COPY COMPLETE.
13.38.51.COPYBR,RTP,YLDFL,2.
13.38.52. COPY COMPLETE.
13.38.52.COPYBR,MSGABT,YLDFL,2.
13.38.52. COPY COMPLETE.
13.38.52.CATALOG,YLDFL,R,N=0.
13.38.52. CATALOG COMPLETE.
13.38.52.REWIND,YLDFL.
13.38.52.LDSET,PRESET=ZERO.
13.38.52.LOAD,YLDFL.
13.38.52.EXECUTE.
13.38.58.      END  YAV8B
13.38.58.    137600 MAXIMUM EXECUTION FL.
13.38.58.     2.900 CP SECONDS EXECUTION TIME.
13.38.58.GET,SPRINT.
13.38.59.REWIND,TAPE3.
13.38.59.SPRINT.
13.39.00. FL 043500B
13.39.04. STOP 2
13.39.04.* DIGITAL EXECUTE COMPLETE
13.39.04.EXIT.
13.39.05.  MAX FL  157100 WORDS
13.39.05.  MSMX    16.640 KPRS.
13.39.05.  MS       4.540 KPRS.
13.39.05.  PF       1.616 KPRS.
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13.39.05. IO 14.691 SECS.
13.39.05. CP 4.231 SECS.
13.39.05. MRU 15.513

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16. Abstract

This document consists of a FORTRAN batch simulation of the YAV-8B aircraft and supporting documentation. A complete description of the aircraft is included. Simulation outputs are compared with flight test data.

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